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1905/06

BULLETIN OF THE

AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS.

VOL. III. FEBRUARY, 1906. NO. 1.

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THIRTIETH ANNUAL CATALOGUE

SESSION 1905-06.

Entered February 27, 1904, at
COLLEGE STATION, TEXAS,
as second class matter, under Act of Congress of July 16, 1894.

AUSTIN:
STATE PRINTING COMPANY,
1906.

106-5m.

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VOL. III. FEBRUARY, 1906. NO. 1.

SPECIAL ATTENTION IS CALLED TO THE SPECIMEN ENTRANCE EXAMINATIONS (SEE APPENDIX). YOUNG MEN INTENDING TO APPLY FOR ADMISSION ARE URGED TO SATISFY THEMSELVES, BEFORE COMING TO THE COLLEGE, THAT THEY CAN ANSWER SUCH QUESTIONS.

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CALENDAR.

1906.

JULY.

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COLLEGE CALENDAR.

1906.

Fall Term begins Monday, September 24.
Entrance examinations and registration of new students, September 24, 25, 26.
Registration of old students, September 26.
Recitations begin September 27.
National Holiday, Thanksgiving Day.
Christmas Holidays begin December 23.

1907.

Winter Term begins Thursday, January 3.
National Holiday, February 22.
State Holiday, March 2.
Spring Term begins Monday, March 25.
State Holiday, April 21.
Commencement Sermon, Sunday, June 9.
Exhibition of Departments and of Work of Students, June 10.
Commencement Day, June 11.

BOARD OF DIRECTORS.

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Professor of Military Science and Commandant of Cadets.

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Lecturer on Animal Husbandry.

J. S. WIER, B. S.,
Professor of Textile Engineering.

F. R. MARSHALL, B. S. A.,
Professor of Animal Husbandry.

G. S. FRAPS, PH. D.,
Acting Professor of Chemistry.

A. F. CONRADI, M. S.,
Acting Professor of Entomology.

C. B. CAMPBELL, PH. B.,
Associate Professor of Languages.

* Died October 26, 1905.

OTHER INSTRUCTORS.

ROBERT F. SMITH,
Associate Professor of Mathematics.

T. P. JUNKIN, A. M.,
Associate Professor of Mathematics.

C. S. POTTS, A. M.,
Associate Professor of Economics and History.

J. A. LOMAX, A. B.,
Associate Professor of English.

E. C. GREEN, B. S.,
Associate Professor of Plant Husbandry.

A. A. HASKELL, S. B.,
Associate Professor of General and Industrial Chemistry.

NATHAN POWELL, A. B.,
Adjunct Professor of Languages.

W. G. DRUMMOND, M. E.,
Assistant Professor of Mechanical Engineering.

R. L. BENNETT, M. S.,
Lecturer on Cotton Culture.

A. MITCHELL, B. C. E.,
Instructor in Drawing.

O. D. HARGIS, B. S.,
Instructor in Chemistry.

G. C. EMBRY, B. LIT.,
Instructor in English.

* L. H. SCHOLL,
Instructor in Apiculture.
J. B. BAGLEY, B. S.,
Instructor in Textile Engineering.

W. C. NELSON,
Instructor in Drawing.

D. E. EARLE, B. S.,
Instructor in Carding and Spinning.

L. E. LEAR, B. S.,
Instructor in Physics and Electrical Engineering.

R. P. MARSTELLER, D. V. M.,
Instructor in Veterinary Science.

A. C. SNYDER,
Instructor in Iron Work.

A. G. HARRAL,
Instructor in Wood Work.

C. E. BARTHOLOMEW, B. S.,
Instructor in Entomology.

Resigned December 1, 1905.

STUDENT ASSISTANTS.

C. W. BOYCE, B. S.,
Assistant in Farm Husbandry.

J. E. HILL, B. S.,
Assistant in Electrical Engineering.

H. S. WOODS, B. S.,
Assistant in Electrical Engineering.

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Chaplain.

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B. SBISA,
Steward.

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Superintendent of the Farm.

W. E. BACHMAN,
Physical Director.

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A. F. CONRADI, M. S.,
Acting State Entomologist.

S. E. ASBURY, M. S.,
Assistant State Chemist.

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Director.

M. FRANCIS, D. V. M.,
Veterinarian.

E. J. KYLE, M. S.,
Horticulturist.

A. F. CONRADI, M. S.,
Consulting Entomologist.

F. S. JOHNSTON, B. Sc.,
Agriculturist.

E. C. GREEN, B. S.,
Assistant Horticulturist.

G. S. FRAPS, PH. D.,
Chemist.

R. L. BENNETT,
Cotton Specialist.

F. R. MARSHALL, B. S. A.,
Animal Husbandry.

J. K. ROBERTSON,
Superintendent State Station, Beeville.

W. S. HOTCHKISS,
Superintendent State Station, Troupe.

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Director.

B. C. PITTUCK, B. S. A.,
State Inspector.

C. O. MOSER, B. S.,
Deputy Inspector.

M. S. CHURCH, B. S.,
Deputy Inspector.

J. C. BURNS,
Deputy Inspector.

LAMAR McLENNAN, B. S.,
Assistant Chemist.

J. C. CRUSE, B. S.,
Assistant Chemist.

HISTORICAL SKETCH.

ORIGIN.

The Agricultural and Mechanical College of Texas, like the land grant institutions in the other States of the Union, owes its origin to an act of Congress approved July 2, 1862. This act donated public lands to the several States and Territories which might provide Colleges for the benefit of Agriculture and the Mechanic Arts, and directed the Secretary of the Interior to issue land scrip to the States in which there was not the requisite quantity of public land. The act further directed that the money derived from this source should constitute a perpetual fund, the principal of which should remain forever undiminished, and the interest of which should be inviolably appropriated by each State to the endowment, support and maintenance of at least one technological College, whose leading object should be, without excluding other scientific and classical studies, and including military tactics, to teach branches of learning pertaining to agriculture and the mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life. It was further provided that the provisions of the act should be formally accepted by the State Legislature. By joint resolution approved November 1, 1871, the Legislature of Texas accepted the provisions of the Congressional legislation, and accordingly there was issued to Texas scrip for 180,000 acres of public land, which was sold for $174,000. This amount was invested in Texas 7 per cent gold frontier bonds. At the time of the opening of the College there was an addition to the fund of accrued interest amounting to $35,000, which was invested in 6 per cent State bonds.

In an act approved April 17, 1871, the Legislature provided for the establishment of the Agricultural and Mechanical College. By the terms of this and later acts, appropriations aggregating $187,000 were made for buildings and equipment. A commission to locate the College was created by the Legislature. After a careful investigation, the commission accepted the proposition of the citizens of Brazos County and located the institution on a tract of 2416 acres of land in that county. Finally, the constitutional convention of 1876 constituted the College a branch of the University of Texas, and, in accordance with the terms of the federal legislation, designated it as an institution for instruction in agriculture and the mechanic arts and the natural sciences connected therewith. The convention further provided that the Legislature should have the right to levy taxes for the maintenance and support of the Agricultural and Mechanical College.

The College was formally opened for the reception of students October 4, 1876.

GROWTH OF THE COLLEGE.

Since 1876, by means of financial aid voted by Congress, and of appropriations made by the State Legislature, there has been developed a considerable foundation at the College for instruction, for investigation, and for experiment. In 1887 Congreess voted the sum of $15,000 to each State for the purpose of establishing experiment stations to conduct original research on the physiology of plants and animals, the diseases of plants and animals, the chemical composition of useful plants, the advantages of rotation of crops, climatology, analyses of soils and waters, the composition of manures, the value of grasses and forage, the composition and digestibility of the different kinds of food for domestic animals, the scientific and economic questions involved in the production of butter and cheese, and such other researches and experiments in agriculture as might be deemed advisable.

In 1890 Congress further appropriated the sum of $15,000 with an annual increase of one thousand dollars for ten years, and provided that the amount appropriated should be equitably divided between the Agricultural and Mechanical College and an institution intended for the technical education of colored students.

In 1895 the Legislature made provision for an experiment station at Beeville, and in 1900 for a second experiment station at Troupe.

At College Station there are five dormitories, a main building for offices and section rooms, an agricultural and horticultural building, a chemical-veterinary building, a mechanical engineering building, a textile engineering building, a hospital, a natatorium, a water, ice and light plant; a laundry, a sewerage system, barns and out houses, and residences for instructors and officers, with a total valuation of approximately $500,000.

GOVERNMENT.

The government of the College is vested in a Board of eight directors, appointed by the Governor for a term of two years. One of the directors is the Commissioner of Agriculture, Insurance, Statistics and History, who serves on the Board by virtue of the office which he holds.

The immediate regulation and direction of the affairs of the College are delegated by the Board of Directors to the President and Faculty.

DEPARTMENTS.

By action of the Board of Directors, the College now has the following departments in operation:

Animal Husbandry.
Architectural Engineering and Drawing.
Botany and Mycology.
Chemistry and Mineralogy.

Civil Engineering.
English.
Entomology.
Farm Husbandry.
History.
Languages.
Mathematics.
Mechanical Engineering.
Military Science.
Physics and Electrical Engineering.
Plant Husbandry.
Textile Engineering.
Veterinary Science.

The College also offers the foundation of courses in railway mechanical engineering, and provides short courses in agriculture for farmers.

OBJECTS.

The objects of the College are indicated in the provisions of the laws of Congress and of the State Constitution and Statutes. Briefly stated, the College was established for the purpose of furnishing an opportunity to the young men of Texas to qualify themselves to do expert work in all industrial pursuits and professions; to furnish information of a scientific and practical character to the people of the State actually engaged in farming, in horticulture, in dairying, and in stock raising, and in every possible way to advance all industrial interests of the State. To meet the urgent demand for men of industrial skill the work of the College has been so planned as to train men in the scientific principles of agriculture, horticulture, cattle raising and related pursuits, and in civil, electrical, mechanical, and textile engineering, drawing and architecture. As rapidly as the funds of the College will allow, provision will be made for expert industrial work in all other directions.

The work of the College in behalf of those actually engaged in industrial pursuits is carried on through the experiment stations, including the main station established at College Station, and the two sub-stations at Beeville and Troupe, through the departments of Animal Husbandry, Chemistry and Mineralogy, Entomology, Farm Husbandry, Plant Husbandry, and Veterinary Science. The Professor of Chemistry is State Chemist, and as such does a large amount of fertilizer, water and mineral analyzing for individuals throughout the State. Through the experiment stations information is furnished to farmers and others in the form of bulletins and through press notices and correspondence. At present there are 25,000 farmers whose names appear on the regular mailing list of the experiment station. As opportunity permits the members of the stations and agricultural staffs visit different sections of the State for the purpose of giving institute lectures to various associations and gatherings of agriculturists. It

will be seen that it is by no means the exclusive mission of the College to furnish instruction to the three or four hundred students who matriculate in the institution. Its constituency embraces, in addition to the student body, twenty-five thousand men actually engaged in industry; and a much wider constituency than this is reached through the press, the correspondence and the lectures.

The law requires the President to see that every student takes an industrial course; care is taken, however, not to omit the more general forms of knowledge which are essential to a liberal education. Only by laying a strong foundation in the field of general science and literature can men be turned out with adequate preparation to take their proper places as directors in industrial advancement.

The military feature, made necessary by the acceptance of the Federal grants, is an important adjunct to the other work of the College. It is conducive to health and to bodily grace and strength and cultivates habits of strict attention, and of obedience, punctuality, neatness and regularity.

DISCIPLINE.

By reason of its isolated location the College is able to exercise effective oversight over the student body. The authorities do not undertake to restrain the liberty of the student more than is necessary for the securing of good results in scholarship and conduct. Each student is expected at all times to conduct himself as a gentleman, and to attend promptly and faithfully to all his duties.

Students are not allowed to leave the College grounds, either to visit neighboring towns for brief periods, or to visit home for longer periods, without first securing permits from the Commandant of Cadets or from the President. Whenever any student has reasonable grounds for his application, such permits are granted.

The College is not a reformatory. It encourages the attendance of young men who have a serious purpose and who really wish to secure a thorough technological training. The Faculty will do everything in its power to assist every cadet, both in securing a sound education and in forming correct habits, but will not tolerate the presence of young men who evince a determination not to study and not to comply with reasonable regulations.

Students who fail to apply themselves or to conduct themselves properly will first be warned and may be put upon probation. In each case their parents will be notified of their shortcomings. If, after full warning to the cadet and to his parents, improvement does not take place, the Faculty may suspend the cadet for a longer or shorter time, or may dismiss him at their discretion.

In order to keep parents systematically informed concerning the progress of their sons, reports, showing class standing and records of conduct, are sent out from the President's office twice each term.

METHOD AND SCOPE OF INSTRUCTION.

The several courses of instruction are designed in accordance with the above outline of objects and policy. In all of them the fundamental idea is education in practical science, particularly in agriculture, and in engineering. With this idea in view, instruction is given in English, history, economics, mathematics, foreign languages, physics, chemistry, and in other studies which lie at the foundation of a sound education and furnish the best preparation for the more technical studies of the several courses. Instruction is given by the use of text books, by lectures and recitations; also by practice in the shop, field, laboratory, and drawing room. These practical exercises have a high educational value, and serve a useful purpose in fixing and rendering clear the ideas presented in the class room; and they have also a practical value, for they are, in great measure, examples of just such problems as the scientific agriculturist, or engineer, will encounter in the pursuit of his calling. For convenience of instruction, the classes are subdivided into sections of suitable size. Unannounced written exercises and examinations will be given at the discretion of instructors. Regular written examinations are held at the end of each term.

LOCATION.

The College is situated at College Station, in the county of Brazos, and is 350 feet above sea level. The Houston and Texas Central and the International and Great Northern railroads run through the grounds, daily trains stopping at the stations, about 650 yards from the main building. Students and visitors are advised to take trains arriving in the daytime.

POSTOFFICE.

College Station is a money order postoffice. Letters intended for persons at the College should not be directed to Bryan. At College Station there are telegraph and express offices.

HEALTH.

The buildings of the College are situated on an eminence with a sufficient slope in every direction to insure the drainage of the campus. As to the hygienic aspect of the location, there is not anything connected with the site which might be regarded as prejudicial to health or act as a causative element in the production of disease.

In order that the students may have the purest and best possible supply of water for drinking purposes, the College furnishes carefully collected cistern water filtered through charcoal before entering the cisterns.

The barracks are inspected daily, and are kept neat and clean throughout. The rooms are well lighted and comfortable.

Drill, shop and field practice, work, and outdoor athletic sports furnish sufficient and varied exercise. Furthermore, they contribute very much to the maintenance of health and proper physical development.

The health of the student body is a very important factor in the amount and efficiency of the work done. There is no endemic disease at the College; most of the sickness is the result of indiscretion on the part of the student, or is due to the introduction of some mild epidemic disease such as measles or mumps.

The hospital is a two-story frame structure. There are four large wards with bath, toilet rooms, etc., capable of accommodating about thirty-five patients. A competent trained nurse is employed, thus securing the best of care for the sick. The diet of sick students is a matter of no little concern, and great care is taken to supply such nourishment as is best adapted to the condition of each patient.

INFORMATION CONCERNING ADMISSION.

BEGINNING OF THE SESSION.

The thirty-first annual session will open Monday, September 24, 1906, and will close Tuesday, June 11, 1907.

Parents are requested to communicate with the President before sending their sons.

REQUIREMENTS FOR ADMISSION.

To enter the College the applicant must be at least sixteen years old and physically able to perform the duties of a cadet. He must be free from contagious or infectious disease.

He must present a satisfactory certificate of good moral character from his last instructor. If he comes from another college he must present a certificate showing that he was in good standing when he left it.

Candidates may be admitted to the Freshman class in one of three ways: (a) by examination, (b) on deploma from an affiliated school, (c) on special approval.

A. ADMISSION BY EXAMINATION.

Candidates will be examined in the subjects mentioned below. The treatment given in the text books indicated will suffice for the purpose of these examinations.

1. Arithmetic, complete. Higher Arithmetic. (*Sutton and Kimbrough.*)
2. Algebra to quadratics, including the fundamental operations, factoring, highest common factor, lowest common multiple, fractions, equations of the first degree with one or more unknown quantities, involution, evolution, theory of exponents, radicals, equations containing radicals. Complete Secondary Algebra, (*Fisher and Schwatt*).
3. Advanced English Grammar and Composition. (*Maxwell.*)
4. History of Texas. (*Mrs. Pennybacker.*)
5. History of the United States. (*Mrs. Lee.*)
6. Ancient History, as treated in *Meyer's* General History.

Specimen entrance examination questions may be found in the appendix.

B. ADMISSION ON DIPLOMA.

Graduates of affiliated schools are admitted to the Freshman class at the beginning of the session without examination. For list of affiliated schools see page 107.

C. ADMISSION ON SPECIAL APPROVAL.

Young men over eighteen years of age, on presentation of certificates from their last instructors that they have satisfactorily completed the required subjects, may, with the consent of the President and professors concerned, be admitted without examination. Such certificates should state how far the several subjects were pursued and what text books were used.

ADVANCED STANDING.

Applicants for advanced standing and those who come after the time set for the entrance examinations will be examined also upon the work already gone over by the class they propose to enter.

MATRICULATION.

Upon arrival at the College, young men intending to enter will report as soon as possible to the President of the College. From him they will go to the several professors for examination and enrollment in classes, and to the Commandant for assignment to company and quarters.

Monday, Tuesday and Wednesday, September 24, 25, and 26, will be devoted to the registration of new students; Wednesday, September 26, to the registration of old students. Recitations will begin Thursday, September 27.

EXPENSES FOR THE SESSION.

The fixed charges are:

Trust fund, payable on entrance	$5 00
Incidental fee, payable on entrance	5 00
Medical fee, payable on entrance	8 00
Maintenance, Fall Term, payable on entrance	46 00
Maintenance, Winter Term, payable January 3	46 00
Maintenance, Spring Term, payable March 25	45 00
Total	$155 00

The trust fund is to pay for property damaged or destroyed, and will be returned to the parent if there is no charge of this kind against the student.

The medical fee covers the professional services of the College physician and of the hospital staff.

Incidental and medical fees will in no case be refunded.

Maintenance includes board, fuel, washing, lights, room rent, single bedsteads, mattresses, tables, washstands, chairs, buckets, basins, and slop cans.

Each student is required to keep on hand a supply of bed clothing, towels, etc. For winter he should provide himself with an overcoat or mackintosh.

Students are required to take their meals at the Mess Hall.

Payment for each term must be made in advance, but a student entering during a term will be charged maintenance for the remainder of that term only.

A student once entering for a term, and having paid for that term, or the balance of it, forfeits all claim to said payment in case of voluntary withdrawal from the College before the expiration of said term,

except in case of sickness disqualifying him for the discharge of his duties for the rest of the term.

The expenses of a graduate student will be $15 for material used in laboratories and practical work, and $8 for medical fee, with charge for maintenance as above. Day students pay $18, as trust fund, incidental fee, and medical fee, as above.

UNIFORM.

Each cadet will be required to provide himself with a regular cadet gray uniform consisting of a blouse, trousers and cap. In addition each cadet will be required to provide, for use during hot weather, a blue flannel shirt of approved pattern with belt, to be worn instead of blouse, and a campaign hat. Furthermore, each student must have, for shop and field practice, a working suit of drilling, which costs from $1.50 to $2.50. Straight white standing collars that lap in front, black ties, white cuffs and black shoes are also parts of the required equipment.

With the exception of collars, cuffs, ties and shoes, these uniforms are made by contract, and students are required to purchase from the contractors, in order that uniformity may be secured in the cut and quality of the clothing, and that parents may be protected from imposition by irresponsible persons, and may secure the best material for the lowest price. All parts of the equipment are carefully inspected by the Commandant of cadets, in order that good fits and satisfactory materials may be secured.

By means of the contract system not only is there a saving effected, but there is also furnished a guarantee that the materials shall be of the requisite pattern and quality. For the efficient enforcement of the arrangements entered into, the College authorities require that each student shall make his purchases through the machinery provided at the College, and that a deposit sufficient to cover the purchase price of the equipment shall be placed in the hands of the Treasurer when the cadet matriculates. It is necessary that the students have the various uniforms at the earliest possible moment; and, therefore, it is absolutely essential that there be no delay in making the deposits. No suit will be ordered until such deposit has been made.

The regular uniform suit, including cap, trousers, and blouse, will cost about $18; the blue flannel shirt, which is the best army shirt, guaranteed to be all wool and fast color, about $2.00; the campaign hat about $2.50.

It should be distinctly realized that this clothing is not an additional expense, but that it is the cheapest clothing that cadets can wear. It is very neat in appearance and is serviceable and durable.

BOOKS.

The College runs a book store for the purpose of supplying books to students at the lowest cost. The books are bought direct from the leading

houses and are sold to students at a price just sufficient to cover the cost. Text books will cost from $15 to $20 a year; drawing instruments for Sophomore students in the engineering courses about $10. Laboratory fees will be—for Freshman engineering students, $1; for all students in the higher classes, from $2 to $5.

STUDENT LABOR.

The Legislature has provided a fund by which a limited number of industrious young men may defray a part of their expenses by working for the College at such times as their regular duties will permit.

The rate of pay is made to depend upon the character of the work, and the manner in which it is performed. A student should not count upon earning more than $40 a session.

EXPULSIONS.

At a joint session of the Board of Regents of the University of Texas and the Board of Directors of the Agricultural and Mechanical College, held at College Station, Texas, from June 30 to July 1, 1896, the following order was made:

"It is ordered, that hereafter, when any student shall be dismissed or expelled from either of the branches of the University of Texas on account of any immoral or other conduct which shall render him an unfit character to be matriculated in any of such branches, it shall thereupon be the duty of the branch so expelling or dismissing such student to immediately notify the other branches of their action, whereupon such other branches shall refuse to receive such student for matriculation, or even for examination, should he apply therefor, until the branch which has so expelled or dismissed him has rescinded or reconsidered its former action, and recommended such student for admission into such other branch at which he may apply."

COURSES OF STUDY.

There are six regular courses, extending through four years and leading to the degree of Bachelor of Science, the particular course pursued being specified in the diploma.

1. Course in Agriculture. Page 23.
2. Course in Architectural Engineering. Page 47.
3. Course in Civil Engineering. Page 53.
4. Course in Electrical Engineering. Page 59.
5. Course in Mechanical Engineering. Page 65.
6. Course in Textile Engineering. Page 73.

In addition, the following courses are offered:

7. A graduate course in Agriculture, leading to the degree of Master of Science in Agriculture. Page 41.
8. Graduate courses leading to the degree of Civil Engineer, Electrical Engineer, Mechanical Engineer, Textile Engineer. Page 83.
9. A short course in Agriculture. Page 41.
10. Elective courses. Page 98.

Note.—In addition to the work in the curricula of the several courses, all undergraduates, except students in the short course in agriculture, have military drill. See course 3, Military Science, page 97.

COURSE IN AGRICULTURE.

It is the object of this course to give young men a thoroughly practical and scientific training in those branches of science which relate to agriculture and horticulture. It is also intended that the student's general training shall not be neglected, and to this end he is given instruction in the English language, history and mathematics, in addition to the special instruction in the sciences of chemistry, physics, botany, and animal anatomy and physiology.

The twenty-four hundred acres in the farm, one hundred and twenty milch cows (Jersey, Holstein and grades), hogs, work stock, tools and machinery, silos, etc., furnish illustrations of practical value to the student. The dairy is fitted with milk separators, pasteurizers, churns, butter-workers and milk-testing machines. The greater part of the labor of the dairy is done by the students in the courses in agriculture; for this and other work they are paid at a maximum rate of twelve and one-half cents per hour.

The permanent location of the Texas Agricultural Experiment Station at the College makes it possible to give students the benefit of experiments conducted at the College, and the Experiment Station library forms a valuable adjunct to the regular College library by furnishing the results of valuable tests made along agricultural lines in other States. The library also receives the leading agricultural periodicals, which are available to students.

The studies in the course in Agriculture are divided into three groups; group A giving prominence to Farm Husbandry, and group B to Plant Husbandry, and group C to Animal Husbandry.

The choice of the three groups must be made at the beginning of the Junior year.

Note.—The curriculum shown on the following pages is designed for students who entered the agricultural course as freshmen in 1904; for the class of 1907 the curriculum will differ in some respects from that shown.

COURSE IN AGRICULTURE.

Note.—The number in parenthesis following the name of a department refers to the number of the course as shown in the description of the department. Practice is indicated by italics.

FRESHMAN YEAR.

Fall.	Hours per week.	Winter	Hours per week.	Spring.	Hour per week.
Animal Husbandry (1) Judging.	3	Animal Husbandry (2) Judging.	2	Plant Husbandry (1) Horticulture.	3
English (1) Rhetoric and Comp.	6	English (1) Rhetoric and Comp.	6	English (1) Rhetoric and Comp.	6
		Farm Husbandry (1) Farm Equipment.	1		
History (2) Mediaeval and Modern.	3	History (2) Mediaeval and Modern.	3	History (2) Mediaeval and Modern.	3
Mathematics (1) Geometry.	6	Mathematics (1) (2) Geometry, Algebra.	6	Mathematics (1) (2) Geometry, Algebra.	6
Animal Husbandry (1)	2½	*Animal Husbandry* (2)	2½	*Plant Husbandry* (1)	5
Drawing (1) (5)	4	*Drawing* (1) (5)	4	*Drawing* (1) (5)	4
		Farm Husbandry (1)	2½		

SOPHOMORE YEAR.

Fall.		Winter.		Spring.	
Animal Husbandry (3) Judging.	3	Botany (1) Morphology, Syst. Bot.	3		
Botany (1) Morphology, Syst. Bot.	2	Plant Husbandry (2) Nursery Methods.	2	Animal Husbandry (4) Judging.	3
Farm Husbandry (2) Farm Crops.	4			Plant Husbandry (3) Truck Gardening.	4
Mathematics (3) Trigonometry.	3	Mathematics (3) Trigonometry.	3	Botany (1) Morphology, Syst. Bot.	3
Chemistry (1) Inorganic.	3	Chemistry (1) Inorganic.	3	Chemistry (2) Organic.	3
English (2) Literature.	3	English (2) Literature.	3	English (2) Literature.	3
		Veterinary Science (1) Vertebrate Zoology.	3		
		Botany (1)	2½		
Animal Husbandry (3)	2½	*Veterinary Science* (1)	2½	*Animal Husbandry* (4)	2½
Farm Husbandry (2)	2½	*Plant Husbandry* (2)	2½	*Plant Husbandry* (3)	2½
Chemistry (1)	2½	*Chemistry* (1)	2½	*Chemistry* (2)	2½
Mech. Engineering (14) Blacksmithing.	2½	*Mech. Engineering* (13) Carpentry.	2½	*Botany* (1)	2½

Group A.—Farm Husbandry.

JUNIOR YEAR.

Fall	Hours per week	Winter	Hours per week.	Spring	Hours per week.
Farm Husbandry (3) Farm Equipment.	3	Farm Husbandry (4) Soils.	3	Farm Husbandry (5) Farm Crops.	3
Farm Husbandry (6) Irrigat'n and Drainage.	3	Farm Husbandry (7) Farm Machinery.	3	Farm Husbandry (8) Irrigat'n and Drainage.	3
Plant Husbandry (4) Orchards.	3	Entomology (2) Economic Entomology.	3	Plant Husbandry (6) Plant Breeding.	4
Entomology (1) Systematic Entomology.	3	Military Science (1) Drill Regulations.	3		
Chemistry (2) Organic.	3	Chemistry (3) Agricultural.	3	Chemistry (3) Agricultural.	3
Physics (5) General.	3	Physics (5) General.	3	Physics (5) General.	3
Farm Husb. (3)	2½	*Farm Husb.* (4) (7)	5	*Farm Husb.* (5) (8)	5
Plant Husb. (4)	2½	*Entomology* (2)	2½	*Plant Husb.* (6)	2½
Entomology (1)	2½				
Chemistry (2)	2½	*Chemistry* (3)	2½	*Chemistry* (3)	2½
Physics (5)	2½	*Physics* (5)	2½	*Physics* (5)	2½

SENIOR YEAR.

Fall.		Winter.		Spring.	
Farm Husbandry (9) Farm Equipment.	3	Farm Husbandry (10) Soils.	3	Farm Husbandry (11) Farm Crops.	3
Architect'l Engineer'g Form Structures.	3	Farm Husbandry (12) Farm Machinery.	3	Farm Husbandry (13) History of Agriculture.	3
Military Science (2)	1	Civil Engineering (1) Survey'g and Level'g.	3	Animal Husbandry (11) Rural Citizenship.	3
Botany (2) Physiology & Nutrit'n.	3	Botany (2) Physiology & Nutrit'n.	3	Botany (3) Mycology.	3
Chemistry (3) Agricultural,	3	Chemistry (4) Geology.	3	Chemistry (4) Geology.	3
History (3) Industrial.	3	History (4) Political Economy.	3	History (4) Political Economy.	3
Farm Husb'ry (9)	2½	*Farm Husbandry* (10)	2½	*Farm Husbandry*(11)	2½
Chemistry (3)	5	*Chemistry* (4)	2½	*Chemistry* (4)	2½
Botany (2)	2½	*Civil Engineering* (1)	2½		
Architect'l Engineer'g	2½	*Botany* (2)	2½	*Botany* (3)	2½

Group B.—Plant Husbandry.

JUNIOR YEAR.

Fall.	Hours per week.	Winter.	Hours per week.	Spring.	Hours per week.
Plant Husbandry (4) Orchards.	3	Plant Husbandry (5) Small Fruits.	2	Plant Husbandry (6) Plant Breeding.	4
		Plant Husbandry (7) Viticulture.	1	Plant Husbandry (8) Spraying.	1
Farm Husbandry (3) Farm Equipment.	3	Entomology (2) Economic Entomology.	3	Farm Husbandry (5) Farm Crops.	3
Entomology (1) Systematic Entomology.	3	Military Science (1) Drill Regulations.	3		
Chemistry (2) Organic.	3	Chemistry (3) Agricultural.	3	Chemistry (3) Agricultural.	3
Languages (1) *or* (3) French or German.	3	Languages (1) *or* (3) French or German.	3	Languages (1) *or* (3) French or German.	3
Physics (5) General.	3	Physics (5) General.	3	Physics (5) General.	3
Plant Husbandry (4)	2½	*Plant Husbandry* (7)	2½	*Plant Husb'ndry* (6) (8)	5
Farm Husbandry (3)	2½	*Entomology* (2)	2½	*Farm Husbandry* (5)	2½
Entomology (1)	2½	*Chemistry* (3)	2½	*Chemistry* (3)	2½
Chemistry (2)	2½	*Physics* (5)	2½	*Physics* (5)	2½
Physics (5)	2½				

SENIOR YEAR.

Fall.		Winter.		Spring.	
Plant Husbandry (9) Pomology.	3	Plant Husbandry (10) Greenhouses.	3	Plant Husbandry (11) Exper. Horticulture.	3
Botany (2) Physiology & Nutrition.	3	Botany (2) Physiology & Nutrition.	3	Botany (3) Mycology.	3
English	1	English	1	Chemistry (4) Geology.	3
Architect'l Engineer'g Form Structures.	3	Chemistry (4) Geology.	3	Entomology (3) Economic Entomology.	2
Chemistry (3) Agricultural.	3	Civil Engineering (1) Surveying and Leveling.	3		
History (3) Industrial.	3	History (4) Political Economy.	3	History (4) Political Economy.	3
Military Science (2)	1			Plant Husbandry Elective from (12) (13) (14)	3
Botany (2)	2½	*Plant Husbandry* (10)	2½	*Plant Husbandry* (11)	2½
Chemistry (3)	5	*Botany* (2)	2½	*Botany* (3)	2½
Architect'l Engineer'g	2½	*Chemistry* (4)	2½	*Chemistry* (4)	2½
		Civil Engineering (1)	2½	*Entomology* (3)	2½

Group C.—Animal Husbandry.

JUNIOR YEAR.

Fall.	Hours per week
Animal Husbandry (5) Dairying.	3
Farm Husbandry (3) Farm Equipment.	3
Chemistry (2) Organic.	3
Physics (5) General.	3
Veterinary Science (2) Physiology.	3
Veterinary Science (3) Anatomy.	1
Animal Husbandry (5)	5
Farm Husbandry (3)	2½
Chemistry (2)	2½
Physics (5)	2½

Winter.	Hours per week
Animal Husbandry (6) Breeding.	3
Entomology (1) Economic Entomology.	3
Chemistry (3) Agricultural.	3
Physics (5) General.	3
Veterinary Science (4) Diseases Dom. Anim's.	3
Military Science (1) Drill Regulations.	3
Entomology (1)	2½
Chemistry (3)	2½
Physics (5)	2½
Veterinary Science (4)	5

Spring.	Hours per week
Animal Husbandry (7) Breeding.	3
Farm Husbandry (5) Farm Crops.	3
Chemistry (3) Agricultural.	3
Physics (5) General.	3
Veterinary Science (5), (6), (7).	4
Animal Husbandry (7)	2½
Farm Husbandry (5)	2½
Chemistry (3)	2½
Physics (5)	2½
Veterinary Science (6)	2½

SENIOR YEAR.

Fall.	
Animal Husbandry (8) Feeding.	3
An. Husbandry (10) Adv. An. Husbandry.	3
Chemistry (3) Agricultural.	3
Military Science (2)	1
History (3) Industrial.	3
An. Husbandry (13) *or* Farm Husbandry (6)	3
An. Husbandry (8) (10)	5
Chemistry (3)	5

Winter.	
Animal Husbandry (9) Feeding.	3
An. Husbandry (10) Adv. An. Husbandry.	3
Chemistry (4) Geology.	3
Civil Engineering (1) Survey'g and Leveling.	3
History (4) Political Economy.	3
An. Husbandry (13) Adv. Dairying.	3
Animal Husbandry (9)	2½
Chemistry (4)	2½
Civil Engineering (1)	2½
Veterinary Science (8)	2½

Spring.	
An. Husbandry (12) Thesis.	3
An. Husbandry (11) Rural Citizenship.	3
Chemistry (4) Geology.	3
History (4) Political Economy.	3
An. Husbandry (13) *or* Farm Husbandry (8)	3
An. Husb'ry (11) (12)	5
Chemistry (4)	2½

DEPARTMENT OF ANIMAL HUSBANDRY.

PROFESSOR MARSHALL.
LECTURER CRAIG.

The courses of study in the Department of Animal Husbandry may be grouped under the three main lines:

(1) The Judging of Live Stock.
(2) The Breeding of Live Stock.
(3) The Feeding of Live Stock.

These are arranged to follow each other in proper order so that they may be best understood by the student, and most clearly taught by the instructor. Every effort is made to make every course in Animal Husbandry contribute to the better understanding of the others, and all unite in embracing the subject completely. Special efforts are made in every course to present the useful side, and also to devote as much time as possible to the practices. Students intending to specialize in Animal Husbandry are required to take the studies under Group C.

These courses are as follows:

1. Judging Market Classes of Cattle and Sheep. Freshman. Fall, 3 hours a week; with practice.

The lectures are explanatory of the various classes of cattle and sheep recognized in the leading stock markets. The points of these and their value to the stockman, butcher, and consumer, are fully discussed. The practice embraces a thorough training in the scoring of fat cattle and fat sheep; supplemented by the study of dressed carcasses as far as possible.

Practice, 2 1-2 hours a week.

2. Judging Market Classes of Horses and Swine. Freshman. Winter, 2 hours a week; with practice.

The classes of horses recognized in the leading markets are discussed fully, and followed by a similar treatment of swine. The distinction of these classes, and their importance, is made clear by the further use of the score card during the practice periods.

Practice, 2½ hours a week.

3. Judging Breed Types of Cattle and Sheep. Sophmore. Fall, 3 hours a week; with practice.

As far as the equipment in live stock will permit, the student is shown, by means of representative animals, the best types of the breeds of cattle

and sheep. The score cards of the different breed associations are used in determining the merits of the animals, and these are further explained in the lectures.

Practice, 2½ hours a week.

4. Judging Breed Types of Horses and Swine. Sophomore. Spring, 3 hours a week; with practice.

The distinctive features of the types of these breeds will be made clear by direct comparison, as far as possible. To aid in this, the score cards of the breed associations will be used extensively; followed by some advanced judging similar to that of the show ring.

Practice, 2½ hours a week.

5. Dairying. Junior. Fall, 3 hours a week; with practice.

Special attention is given to the details of dairying from the viewpoint of the farmer. The care of milk, the separation of the cream, and the after disposal of these products are discussed. The manufacture of butter is treated in a thorough manner, including the practical details of making it, together with the proper methods of preparing it for market and selling it. The construction of creameries, cheese factories, and dairies, is also discussed in detail.

Practice, 5 hours a week.

6. The Breeding of Live Stock. Junior. Winter, 3 hours a week.

The lectures of this course embrace a presentation of the principles of breeding, the methods of breeding, and the history and characteristics of the breeds of live stock. Heredity and variation and allied topics are included in the lectures on the principles, while the subjects of in-breeding, line-breeding, and balanced-breeding are among those relating to the methods of breeding.

7. The Breeding of Live Stock. Junior. Spring, 3 hours a week; with practice.

The practices of breeding live stock are treated fully, including the business of producing pure-bred stock, as well as those for the common market. The breeding of horses, cattle, sheep, and swine as a business, is discussed in full detail; covering all features of management in production and marketing.

Practice, 2½ hours a week.

8. The Feeding of Live Stock. Senior. Fall, 3 hours a week; with practice.

The subjects of animal nutrition, the calculating of rations for farm animals, and the composition of all available feed stuffs, are treated very

fully in this course. The making of rations for different classes of stock from limited selections of foods is a part of the practice.

Practice, 2½ hours a week.

9. The Feeding of Live Stock. Senior. Winter, 3 hours a week; with practice.

This is a continuation of the work in feeding of the previous term. It embraces a study of the feeding of all classes of farm animals, horses, cattle, sheep, and swine. The student will be required to make abstracts of Experiment Station bulletins, and to keep fully informed as to the latest publications relating to feeding from these sources.

Practice, 2½ hours a week.

10. Advanced Animal Husbandry. Senior. Fall, Winter, 3 hours a week; with practice.

In this course the work of competitive judging is given prominence. Classes of the different kinds of live stock are selected as similar as possible to those which come together in the show rings of exhibitions.

Practice, Fall, 2½ hours a week.

11. Rural Citizenship. Senior. Spring, 3 hours a week; with practice.

The farmer has important relations other than those intimately connected with his business. Among these, the farm-press and agricultural societies are of leading influence. Such should have his careful attention and assistance; consequently, the best ways of rendering these are worthy of comprehensive study. The investigation of assigned topics of timely interest, and the preparation of such in the proper way, is discussed fully. This has in view particularly the preparation of matter for the agricultural press, with the object of introducing the student to agricultural journalism. The organization of societies and the subject of parliamentary practice, and kindred topics, with such information as may be necessary for the formation of Farmers' Institutes and allied societies will be presented in detail.

Practice, 2½ hours a week.

12. Thesis and Investigation. Senior. Spring, 3 hours a week; with practice.

The student is given opportunity to complete to the fullest extent, by original investigation and research, the lines of study in which he has taken his major work.

Practice, 2½ hours a week.

13. Advanced Dairying. Senior. Winter, Spring, 3 hours a week.

DEPARTMENT OF BOTANY AND MYCOLOGY.

PROFESSOR BALL.

The aim of this department is to utilize the time allotted to it in work which is most needful in the study of agricultural and horticultural subjects and to give such knowledge of plant life as every well-educated man should possess.

Instruction is given by lecture and text, and especial emphasis is laid upon work done in the laboratory, where every effort is made to induce habits of independent observation and thought.

The courses are as follows:

1. Morphology and Systematic Botany. Sophomore. Fall, 2 hours; Winter and Spring, 3 hours a week; with practice.

The course begins with a study of elementary plant relations in the fall term. Following this the form and structure, both internal and external, are studied in such manner as to lay a good foundation for the systematic and more extended ecologic work of the spring term. Such division is necessary since the classes are dependent upon nature for working material. As many of the plants of this vicinity as time permits will be studied and identified. A clear and concise knowledge of the plant as a living being is the aim desired in this course, and not merely the ability to "run a plant out."

Botany, *Bailey;* Plant Relations, *Coulter;* Flora of the Southern States, *Chapman;* other reference works from the department library.

Pactice, Winter, Spring 2½ hours a week.

2. Physiology and Nutrition. Senior. Fall, Winter, 3 hours a week; with practice.

A study of the general physiology of the plant is here offered and is as extended as is practicable in the time allotted. The functions of respiration, assimilation and nutrition receive especial attention. Each student is assisted and encouraged to the utmost in making original investigations in addition to the set experiments outlined in the manual and made in the laboratory. The object steadfastly kept in view is to make this work of practical benefit to the student who may pursue studies in agriculture or horticulture, and at the same time to widen and deepen his conception of this part of nature.

Physiology of Plants, *Darwin* and *Acton;* Text-book and Practical Botany, *Strasburger;* other reference works from the department library.

Practice, 2½ hours a week.

3. Mycology. Senior. Spring, 3 hours a week; with practice.

A course in plant pathology is offered in which studies are made of the chief diseases of plants of this vicinty whch are of economic importance and which have a direct bearing upon agricultural and horticultural pursuits. The student is trained to identify the simpler forms of fungi producing these troubles and is shown the rationale of spraying and other measures used to correct them. An outline of the systematic relations is also given as far as time permits. Molds, Mildews and Mushrooms. *Underwood;* Diseases of Plants, *Tubeuf* and *Smith.* Reference books from the department library.

Practice, 2½ hours a week.

GRADUATE WORK.

Courses of advanced reading are assigned and a thesis is required on one of the following subjects or an equivalent: an ecologic study of any family well represented in this vicinity; original investigation of any assigned topic in plant physiology; a study of any family of grasses of Texas. In mycology, advanced work may also be selected in methods of research and technique; monographic study of a family of pathogenic or non-pathogenic fungi, or any similar topic.

DEPARTMENT OF ENTOMOLOGY.

ACTING PROFESSOR CONRADI.
*MR. SCHOLL.
MR. BARTHOLOMEW.

It is the purpose of this department so to train the students that they may be able to investigate insect depredations as they occur, and determine what is the best remedy to apply or the best protective measure to provide. The department is well equipped with charts, models, lantern slides, a representative collection and library.

The courses are as follows:

1. Systematic Entomology. Junior. Fall, 3 hours a week; with practice.

Lectures and recitations upon the common injurious and beneficial insects so that the student may recognize them. An introduction to the literature of systematic and economic entomology. In the laboratory the student studies specimens of insects in order to become familiar with their structure; collecting trips are made to the field where observations are made on the life history and habits of the insects, and

* Resigned December 1, 1905.

the student is made familiar with the nature of the injuries caused by different insect pests.

Practice, 2½ hours per week.

2. Economic Entomology. Junior. Winter, 3 hours a week; with practice.

Lectures and recitations upon the common injurious and beneficial insects, their life histories, habits and means of controlling them. Special attention is given to the control of pests of staple, truck and fruit crops. A consideration of general methods of farm practice for controlling insects, and the preparation and use of insecticides. In the laboratory the student is introduced to the different types of spray machines and accessories, supplemented with practice in manipulating spray machinery in actual spraying operations in the field.

Practice, 2½ hours a week.

3. Economic Entomology. Senior. Spring, 2 hours a week; with practice.

A continuation of Course 2. Lectures upon the insects of fruit and garden crops and the use of insecticides and apparatus against them. Practice work in collection and identification of orchard and garden insects. Required of students in Group B.

Practice, 2½ hours a week.

4. Advanced Entomology. Senior. Elective.

Advanced work in the structure and classification of insects, and special investigation of insect pests in the field and laboratory. The work of this course will be outlined for each individual student and is designed for those electing thesis work in Entomology or those intending to pursue graduate work in this department.

5. Apiculture. Elective.

Although apiculture is not included in the regular course of study, those students desiring to study beekeeping will be given a complete course by arranging with the instructors. A model apiary with leading races of bees and all modern apparatus is available for practical work.

GRADUATE WORK.

Advanced work upon the comparative anatomy of insects; the formation and classification of a collection; laboratory and insectary technique; thesis work in original investigation. This work is designed to fit the student for professional entomological work.

DEPARTMENT OF FARM HUSBANDRY.

PROFESSOR JOHNSTON.

The course of study in the Department of Farm Husbandry presupposes that the young man entering it has had that training in farm matters that must necessarily come to a young man who has spent at least a portion of his early life upon the farm. The course is intended to add to this training, but not to displace it. The business of farming requires that a man should be able to do and to think. For this reason training in the use of reason is largely dwelt upon since experience has taught that the young men from the farm are usually much better prepared to do than to think.

A technical knowledge of those principles upon which depend the maintenance of fertility; the growth and management of farm crops; the effect of irrigation and drainage upon the soil and upon the crops; the planning of farms and erection of farm buildings; the use of power upon the farm; and the use of farm implements and machinery, is required.

Students intending to follow the lines of work laid down in the courses in Farm Husbandry are required to take the studies arranged under Group A.

The courses are as follows:

1. Farm Equipment. Freshman. Winter, 1 hour a week; with practice.

Lectures and recitations upon the selection and planning of farms; planning of farm buildings and fences; and laying out systems of farm roads.

Practice, 2½ hours a week.

2. Farm Crops. Sophomore. Fall, 4 hours a week; with practice.

Lectures and recitations upon the elementary principles of soil formation; upon the foods necessary to the growth of plants; and how the plant gets its food from the soil. Practice will be given in judging and scoring typical specimens of corn and the small grains.

Practice, 2½ hours a week.

3. Farm Equipment. Junior. Fall, 3 hours a week; with practice.

Lectures and recitations upon equipping farms; erecting farm buildings; construction of roads; drawing plans of farms and farm buildings.

Practice, 2½ hours a week.

4. Soils Junior. Winter, 3 hours a week; with practice.

Lectures and recitations upon the origin, formation, kinds, and physition, irrigation, and drainage. Laboratory practice will be given in testing physical properties of several soils; determining the relation of heat, moisture, air and fertilizers to soils, and in making mechanical analyses of different soils.

Practice, 2½ hours a week.

5. Farm Crops. Junior. Spring, 3 hours a week; with practice.

Lectures and recitations upon the history, production, cultivation, harvesting, and marketing of farm crops. Practice will be given with growing and dried specimens of crops, including grasses, clovers, and other forage crops.

Practice, 2½ hours a week.

6. Irrigation and Drainage. Junior. Fall, 3 hours a week.

Lectures and recitations are given upon the several methods of irrigation in use; the amount of water necessary for the various crops; and the available water supply of the State. The flow of water through soils and the proper methods of protecting lands from washing are discussed. Practice is given in the laying out of efficient systems of open and tile drains.

7. Farm Machinery. Junior. Winter, 3 hours a week; with practice.

Lectures and recitations upon the construction and use of farm machinery, including the application of mechanical principles in its structure and operation. Practice will be given in making comparisons and tests of various makes and kinds of farm machinery.

Practice, 2½ hours a week.

8. Irrigation and Drainage. Junior. Spring, 3 hours a week; with practice.

Continuation of Course 6.

Practice, 2½ hours a week.

9. Farm Equipment. Senior. Fall, 3 hours a week; with practice.

Continuation of Course 3.

Practice, 2½ hours a week.

10. Soils. Senior. Winter, 3 hours a week; with practice.

Continuation of Course 4.

Practice, 2½ hours a week.

11. Farm Crops. Senior. Spring, 3 hours a week; with practice.

Lectures and recitations upon the effect of climate, soil, and markets upon the distribution and adaptation of the farm crops of the United States; the best methods of crop production, including a careful study of the details of field experimentation as set forth in experiment station bulletins and reports and the publications of the U. S. Department of Agriculture; and the consumption of farm crops.

Practice, 2½ hours a week.

12. Farm Machinery. Senior. Winter, 3 hours a week.

13. History of Agriculture. Senior. Winter, 3 hours a week.

Lectures and recitations upon the history of agriculture; present agricultural methods in various countries; cost and relative profits of various farm operations and systems.

DEPARTMENT OF PLANT HUSBANDRY.

PROFESSOR KYLE.
MR. GREEN.

The work of this department is designed to prepare young men for practical and scientific work in horticulture. To accomplish this end, every effort is made to give the student a thoroughly practical course, and at the same time to inspire in him a spirit of investigation and research.

There are upon the horticultural grounds two peach orchards, a pear, an apple, a persimmon, a fig orchard, and a vineyard, in which students receive practice in pruning, grafting and orchard management in general. Plantings of strawberries, blackberries and dewberries are being made, so that students may become thoroughly acquainted with these fruits that are becoming of so much importance to Texas. A nursery is being started for the purpose of giving instruction in budding, grafting and the minor details of nursery management.

On account of the rapid development in the State of truck farming, a great deal of attention is given to vegetable growing. Extensive variety tests are carried on, embracing nearly every species of vegetable grown in the South. The forcing-house, hot-beds, and cold-frames are used for the forcing of early truck crops.

During the Senior year, courses in forestry, landscape-gardening, and floriculture may be elected by students in group B. The courses are designed to give the fundamental principles of these subjects. A stereopticon is used in exhibiting lantern-slides in landscape gardening, methods of fruit and truck growing, etc. The department library con-

tains a number of select horticultural books and periodicals and an almost complete file of the bulletins published by the different experiment stations in the United States.

Positions, for the summer vacation, are secured with the most prominent fruit and truck growers of the United States for students who desire the experience thus to be obtained.

Students intending to follow the lines of work laid down in Plant Husbandry are required to take the studies arranged under Group B.

The courses are as follows:

1. Elements of Horticulture. Freshman. Spring, 3 hours a week; with practice.

This course is designed as an introduction to the general subjects of fruit and truck growing, gardening, and forestry. Plant Culture, *Goff.*

Practice, 5 hours a week.

2. Nursery Methods. Sophomore. Winter, 2 hours a week; with practice.

The principles involved in the different methods of propagation of plants are fully discussed in the class-room, this work being supplemented by practical operations in field and forcing-house, and at the grafting bench. The protection of plants and nursery stock from insects and disease is considered. Lectures and reference books.

Practice, 2½ hours a week.

3. Truck Gardening. Sophomore. Spring, 4 hours a week; with practice.

Detailed instruction in planning, equipping, and operating vegetable plantations for home or commercial purposes is given in the class-room, and practical demonstrations and experience in the field are offered. Principles of Vegetable Growing, *Bailey.* Lectures, text and references.

Practice, 2½ hours a week.

4. Orchards. Junior. Fall, 3 hours a week; with practice.

This course contemplates a comprehensive study of the various kinds of fruit orchards, embracing the problems of location and soils, protection from insects and diseases, pruning, cultivation, harvesting, and marketing. Principles of Fruit Growing, *Bailey.* Lectures and references.

Practice, 2½ hours a week.

5. Small Fruits. Junior. Winter, 2 hours a week.

This course consists of a study of small and bush fruits similar to that of the tree fruits outlined in Course 9. Bush Fruits, *Card.* Lectures and references.

6. Plant Breeding. Junior. Spring, 4 hours a week; with practice.

This course is planned to give the student a better understanding of the benefits to be derived from the intelligent breeding of plants. The relation of horticultural varieties and hybrids to each other and to their parent species is discussed, together with the principles of pollination, crossing, and hybridization. Lectures and references.

Practice, 2½ hours a week.

7. Viticulture. Junior. Winter, 1 hour a week; with practice.

This course includes a study of the vine, its care, management, and products. The manufacture of jellies and the preservation of grape-must are considered. Lectures.

Practice, 2½ hours a week.

8. Spraying. Junior. Spring, 1 hour a week; with practice.

Discussion of compounds and apparatus used in combating insects and diseases. Practice in making the various mixtures and applying them to plants. Spraying of Plants, *Lodeman.* Lectures.

Practice, 2½ hours a week.

9. Pomology. Senior. Fall, 3 hours a week.

A comprehensive study is made of the evolution of our native fruits. Special attention is given to the grape, plum, mulberry, apple, cherry, blackberry, dewberry, strawberry, persimmon, etc. Practice in systematic pomology is given with such fruits as can be obtained during the fall.

10. Greenhouses. Senior. Winter, 3 hours a week; with practice.

Special attention is given to growing early vegetable plants, cut flowers, and palms. The course is especially designed to meet the needs of commercial truck growers and florists. Laboratory work in designing glasshouses and practice in the forcing-house are given. Greenhouse Construction, *Taft.*

Practice, 2½ hours a week.

11. Experimental Horticulture. Senior. Spring, 3 hours a week; with practice.

This course is intended to familiarize the student with the practical methods of planning and carrying out experiments. The student will be required to plan his experiment, prepare the land, mix and apply the fertilizer, sow the seed, care for and harvest the crop, and make a report on the results obtained.

Practice, 2½ hours a week.

12. Landscape Gardening. Elective. Senior. Spring, 1 hour a week.

Lectures are given on the history and development of gardening. The engineering and planting of parks, cemeteries, and home grounds are discussed. Lectures.

13. Floriculture. Elective. Senior. Spring, 2 hours a week; with practice.

A full discussion is given of methods in growing bedding plants, cut flowers, orchards, palms and cacti. This course is designed for florists. Lectures and references.

14. Elementary Forestry. Elective. Senior. Spring, 2 hours a week.

A brief study of the history of forestry, means of propagation and development, and of the effects of forests on climate, etc. Lectures, references, and recitations.

DEPARTMENT OF VETERINARY SCIENCE.

PROFESSOR FRANCIS.
DR. MARSTELLER.

The instruction of students in Veterinary Science has been greatly facilitated by the use of rooms specially designed for this work. The lecture rooms are provided with terraced seats, which enable every student to see the demonstrations. The dissecting room is convenient, well lighted and floored with asphalt. The department is equipped with Azoux's model of the horse, some skeletons, skulls, diseased bones, parasites, tumors, monstrosities, charts, surgical instruments, etc.

The courses are as follows:

1. Vertebrate Zoology. Sophomore. Winter, 3 hours a week; with practice.

This course is intended as an introduction to the study of Veterinary Science. It treats of animal processes in a general way, and is supplemented by a practice period in the laboratory in which the student is given an opportunity to study for himself the main features of animal life—such as digestion, circulation, absorption, excretion, etc.

Practice, 2½ hours a week.

2. Physiology of the Domestic Animals. Junior. Fall, 3 hours a week.

This is a lecture course intended for students of animal husbandry. It deals mainly with the nutritive functions of animals, that the stu-

dents may be prepared to understand the problems that arise in the economic production of beef, pork and dairy products. Text-book, *Smith.*

3. Anatomy of the Horse. Junior. Fall, 1 hour a week.

A lecture course embracing a critical study of the bones, joints, muscles and the organs of nutrition. It is followed by a practice period of two afternoons per week, during the winter term, in which each student is required to make actual dissections of the horse.

Text and reference books: Comparative Anatomy of the Domestic Animals, *Chauveau;* Anatomy of the Horse, *McFadyean;* Anatomie des Pferdes, *Leisering.*

4. Diseases of the Domestic Animals. Junior. Winter, 3 hours a week; with practice.

This course embraces a discussion of the causes of disease, the methods of infection, the symptoms, duration, mortality, treatment, etc. During the lectures, points on immunity, tolerance, phagocytosis, toxins, antitoxins and diagnosis by the injection of the products of organisms, are presented.

Text book. Pathology and Therapeutics of the Domestic Animals, *Freidberger & Frohner.*

Practice, 5 hours a week.

5. Parasites and Parasitic Diseases.—Junior. Spring, 2 hours a week.

This course embraces the description and the life history of those parasites which are of economic importance to the live stock interests of Texas.

Reference. *Fleming's* translation of *Neuman.*

6. Pharmacology. Junior. Spring, 1 hour a week; with practice.

A study of the substances used as medicines for animals and their curative properties. Practical demonstrations of narcosis and anæsthesia are given.

Practice, 2½ hours a week.

7. Obstetrics. Junior. Spring, 1 hour a week.

A lecture course on the process of reproduction and the diseases and accidents incident thereto.

Text-book: Veterinary Obstetrics, *Fleming.*

8. Veterinary Laboratory. Senior. Winter, 2 1-2 hours a week. Practice.

This course will vary somewhat with the desires of those who seek it. It may embrace a histological study of animal tissues or the structure of some important parasite or tumor; or the student may give his whole time to the bacteriology of such diseases as anthrax, black-leg, hog cholera, glanders, etc.

GRADUATE COURSE.

Graduate studies in the Agricultural Course lead to the Degree of Master of Science (in Agriculture).

It is required for admission to this course that the candidate be a graduate of this College, or of some other institution approved by the Faculty. He must select a major subject, two minor subjects, and one foreign language. The course of study will occupy two years, at least one of which must be spent in residence at the College. The student must give continued satisfaction in his studies, must pass satisfactory examinations upon the subjects of the course, and must submit an approved thesis.

SHORT COURSE IN AGRICULTURE.

This course includes an eight weeks course in Animal Husbandry, Horticulture, Farm Husbandry, Veterinary Science, Dairying, Entomology, and Agricultural Chemistry.

In Animal Husbandry there are sixty lectures on judging live stock, breeds and breeding, and feeds and feeding. Six hours of each week are given to the scoring and judging of all classes of stock.

PROFESSOR CRAIG and PROFESSOR MARSHALL.

In the Department of Plant Husbandry thirty lectures are given during the course, embracing fruit growing, vegetable gardening, and economic entomology. Four hours of each week are given to practical work in budding, grafting, and other features of practical horticulture.

PROFESSOR KYLE and MR. GREEN.

The Department of Farm Husbandry provides for twenty lectures, embracing farm equipment, soils, farm crops, and judging seed. Four hours of each week are given to laboratory work or practice.

PROFESSOR JOHNSTON, MESSRS. BENNETT and CARSON.

The Department of Veterinary Science offers twenty lectures on anatomy and physiology of domestic animals, with practice work in dissection and demonstrations.

Professor Francis.

In the Department of Animal Husbandry provision is also made for twenty lectures on dairy equipment, dairy chemistry, farm dairying, use of separators and butter making. Four hours a week are given to the practical work in the creamery.

Professor Marshall.

THE AGRICULTURAL EXPERIMENT STATIONS.

The Agricultural Experiment Stations seek to find the correct answers to the many problems connected with agriculture through the results they obtain by direct investigation and experimentation. At present there are three stations; the main one, located at College Station, supported by the Hatch fund of the general government, and two sub-stations, one at Troupe, Smith County, and the other at Beeville, Bee County. The results of the experiments at these stations are published in bulletins, of which six were issued during the past year. In addition, much matter relating to more general farm questions was sent out in the form of press bulletins. Supplementing this, the staff of the Stations devote a large portion of their time to answering inquiries which reach them by correspondence and personal interviews.

The Department of Farm Husbandry gives considerable attention to soils. A collection of Texas soils is being added to rapidly to assist in a close study of these. In the field work, testing the different varieties of cereals, grasses, and forage plants is the main line of investigation. About forty acres are used by this department for this purpose. Special attention is given to the study of the cotton crop in all its phases. Alfalfa also receives special study.

The Department of Animal Husbandry concerns itself mostly with problems arising from the feeding of Texas steers, sheep, and swine on Texas food products. The aim is to make this feature of the work directly useful to the stockman by studying the various relations of the ranch to the feed lot, and the best means of making the most of Texas conditions in the development of our stock interests. Experiments are now under way in feeding steers on Texas grown fodders, alfalfa, sorghum and Spanish peanuts as against the common practice of using cottonseed hulls for roughage. Experiments have been extensively conducted in feeding cottonseed meal, hulls, rice by-products, and molasses. The development of the work will embrace extensive experiments in feeding sheep and swine.

The Department of Plant Husbandry centers its energies chiefly on fruit and vegetable growing. At the main Station, the products of the garden have been specially studied, particularly those having a ready market. Extensive experiments have been made in this direction with Irish potatoes, tomatoes, and other crops that meet with ready demand. At the sub-stations the use of fertilizers for the purposes of truck gardening, and the growing of all kinds of vegetables and fruit have been the subject of experiments. The eastern portion of the State and the

central sections have many problems in this work which have to be considered by this department.

The Department of Veterinary Science has rendered the live stock interests valuable service in its researches regarding Southern fever, and the value of inoculation and dipping. The investigations in this direction have been extensive, and the carefulness with which they have been planned and conducted has added much to the prestige of the department among the stockmen. Much work is also done in investigating the common troubles among live stock in Texas.

The Department of Chemistry has established intimate relations with important interests of the State; mainly those connected with the sugar, rice, and cotton plantations. The manufacture of sugar cane into syrup, the value of by-products from the rice industry, and the worth of molasses for feeding purposes, have been recently studied from the chemical side.

This resumé will indicate how the Experiment Stations come in contact in a vital way with the vast agricultural interests of this immense State. The stockman, whether on a ranch or stock and feeding farm, reaches out to the Veterinary or Animal Husbandry department for help when troubles or problems confront him; the horticulturist and the truckgrower of the southern or central portion of the State make demands on the Department of Plant Husbandry; the immense industries of the coast and cotton country find assistance in the Chemical Department, while from all over the State come matters to be solved by the Department of Farm Husbandry.

The State Agricultural Experiment Stations, under control of the Board of Directors of the College, are established and maintained by legislative appropriations.

The Beeville Station, established at Beeville, Bee County, in 1895, has given much attention to fruit and vegetable growing and irrigation.

The Troupe Station, established at Troupe, Smith County, in 1902, is located in the heart of the fruit section of East Texas.

There are about 25,000 names on the mailing list. The department is glad to add as many new names as possible, provided they are those of interested persons.

FARMERS INSTITUTES.

DIRECTOR, J. W. CARSON.

The Farmers Institutes offer the most effective means of assisting the College and Experiment Stations in bringing the best of their work directly to the attention of the farmers, and they also offer a medium by which the most successful farmers may be helpful to their fellows. The Institutes are in the immediate charge of the director, who arranges for the organization and conducting of them through the agricultural division of the College. While the agricultural faculty assist as much as possible in conducting meetings, yet outside assistance is freely drawn upon when an important feature of farm work has received special study and achieved special success by some expert.

During the past session over one hundred institutes were held under the College auspices. They have been held in the communities desiring them most and where they were likely to do the most good.

Applications for the holding of institutes and for assistance should be sent to the Director of Institutes not later than September 30th, when the arrangement of speakers and dates will be made by the College authorities.

COURSE IN ARCHITECTURAL ENGINEERING.

This course is designed to prepare young men for professional work as architectural engineers and draftsmen by providing the general culture studies which are essential to a broad technical education, and the aesthetic and scientific training necessary to design a building with due regard to proportion, structural safety, and economy of material.

The course of instruction extends over a period of four years and comprises general courses in English, history, economics, modern languages, military science, mathematics, physics, chemistry and geology; and technical courses in drawing, descriptive geometry, perspective, pen-and-ink, and water color rendering, architectural history, architectural design, surveying and leveling, materials of construction, mechanics of materials, stresses in bridge and roof trusses, structural design, masonry structures, sanitary engineering, electric lighting and wiring, heating and ventilating, and building construction.

COURSE IN ARCHITECTURAL ENGINEERING.

Note.—The number in parenthesis following the name of a department refers to the number of the course as shown in the description of that department. Practice is indicated by italics.

FRESHMAN YEAR.

Fall	Hours per week
English (1) Rhetoric and Comp.	6
History (1) Mediaeval and Modern.	4
Mathematics (1) Geometry.	6
Physics (1) Elementary.	2
Drawing (1) (5)	5
Mech. Engineering (13)	5

Winter	Hours per week
English (1) Rhetoric and Comp.	6
History (1) Mediaeval and Modern.	4
Mathematics (1) (2) Geometry, Algebra.	6
Physics (1) Elementary.	2
Drawing (1) (5)	5
Mech. Engineering (13)	5

Spring	Hou per wee
English (1) Rhetoric and Comp.	6
History (1) Mediaeval and Modern	4
Mathematics (1) (2) Geometry, Algebra.	6
Physics (1) Elementary.	2
Drawing (1) (5)	5
Mech. Engineering (14)	5

SOPHOMORE YEAR.

Fall.	
Drawing (6) Descriptive Geometry.	3
English (2) Literature.	3
Languages (1) *or* (3) French or German.	3
Mathematics (4) Trigonometry.	6
Physics (2) General.	3
Drawing (2) (7)	5
Mech. Engineering (14)	5

Winter.	
Drawing (6) Descriptive Geometry.	3
English (2) Literature.	3
Languages (1) *or* (3) French or German.	3
Mathematics (5) (6) Algebra, Analytics.	6
Physics (2) General.	3
Drawing (2) (7)	5
Physics (2)	5

Spring.	
Civil Engineering (1) Surveying and Levelin	3
English (2) Literature.	3
Languages (1) *or* (3) French or German.	3
Mathematics (6) Analytics.	6
Physics (2) General.	3
Drawing (2) (7)	5
Civil Engineering (1)	5
Physics (2)	5

* For one-half the term only.

JUNIOR YEAR.

Fall	Hours per week	Winter	Hours per week	Spring	Hours per week
Architect'l Eng. (1) Building Construction.	3	Architect'l Eng. (3b) Hist. of Architecture.	2	Civil Enginering (4) Mech. of Materials.	6
Architect'l Eng. (3a) Hist. of Architecture.	3	Elec. Engineering Lighting and Wiring.	1		
Physics (3) Electricity.	3	Chemistry (1) Inorganic.	3	Chemistry (1) Inorganic.	3
Languages (2) *or* (4) French or German.	3	Languages (2) *or* (4) French or German.	3	Languages (2) *or* (4) French or German.	3
Mathematics (7) Calculus.	3	Mathematics (7) Calculus.	3	Mathematics (7) Calculus.	3
		Military Science (1) Drill Regulations.	3		
Architect'l Eng. (2)	5	*Architect'l Eng.* (4)	2½	*Architect'l Eng.* (4)	2½
Drawing (3) (8)	4½	*Drawing* (3) (8)	4½	*Drawing* (3) (8)	4½
Physics (3)	2½	*Chemistry* (1)	2½	*Civil Engineering* (4)	2½
		Physics (3)	2½	*Chemistry* (1)	2½

SENIOR YEAR.

Fall.		Winter.		Spring.	
Architect'l Eng. (3c) Hist. of Architecture.	3	Architect'l Eng. (8) Building Construction.	3	Architect'l Eng. (9) Materials of Construction.	3
Civil Engineering (5) Roofs and Bridges.	3	Architect'l Eng. (10) Heating and Ventilating.	3	Architect'l Eng. (10) Heating and Ventilating.	3
Civil Engineering (7) Masonry Structures.	3	Civil Engineering (5) Roofs and Bridges.	3	Civil Engineering (8) Sanitary Engineering.	3
History (3) Industrial.	3	Chemistry (4) Geology.	3	Chemistry (4) Geology.	3
Mathematics (8) Calculus.	3	History (4) Political Economy.	3	History (4) Political Economy.	3
Military Science (2)	1	*Architect'l Eng.* (6) (7)	5	*Architect'l Eng.* (6) (7)	7½
Architect. Eng. (5) (7)	5	*Drawing* (4)	2		
Drawing (4)	2	*Civil Engineering* (5)	5		
Civil Engineering (5)	5				

DEPARTMENT OF ARCHITECTURAL ENGINEERING AND DRAWING.

PROFESSOR GIESECKE.
MR. MITCHELL.
MR. NELSON.

The courses of study in this department, in connection with those given in other departments and enumerated under the course of study on the preceding pages, are intended to supply the preliminary training necessary for professional work as an architectural engineer and draftsman.

The instruction in Freehand Drawing, Mechanical Drawing, and Descriptive Geometry has three objects: first, to train the student in a general way by developing his powers of observation and imagination; second, to provide a basis for further instruction in other departments; third, to prepare the student for professional work as a draftsman.

The department is equipped with the necessary tables, boards, models, and reference books; also with drawing instruments for the use of the agricultural students of the Freshman class.

The courses are as follows:

1. Building and Construction. Junior. Fall, 3 hours a week.

Recitations, lectures; inspection of buildings.
Building Construction. Part II. *Kidder.*

2. Working Drawings and Specifications. Junior. Fall, 5 hours a week. Practice.

Lectures; the student is required to prepare plans, elevations, framing plans, and specifications for a building. This course will enable the student to secure instructive employment in an architect's office during the vacation preceding his senior year.

3a. History of Architecture. Junior. Fall, 3 hours a week.

Egyptian, Greek, Roman, and Byzantine architecture.

3b. History of Architecture. Junior. Winter, 2 hours a week.

Romanesque and Gothic architecture.

3c. History of Architecture. Senior. Fall, 3 hours a week.

Renaissance and Modern architecture.

Instruction is given by means of lectures, lantern illustrations, recitations; written exercises and sketches are required. A History of Architecture, *Fletcher*.

4. Architectural Design. Junior. Winter, Spring, 2 1-2 hours a week. Practice.

A study of the classic order of architecture, which are drawn to scale and rendered in ink and color.

5. Architectural Design. Senior. Fall, 2 1-2 hours a week. Practice.

A study of the best examples of classic buildings; scale drawings rendered in ink and color.

6. Architectural Design. Senior. Winter, 2 1-2 hours; Spring, 5 hours a week. Practice.

Periodical problems in design.

7. Constructive Design. Senior. Fall, Winter, Spring, 2 1-2 hours a week. Practice.

A series of exercises in designing floor joists, beams, girders, columns, trusses, foundations, walls, floors and roofs.

8. Building Construction. Senior. Winter, 3 hours a week.

Steel construction and fireproofing. Recitations; lectures; exercises. Architectural Engineering, *Freitag*.

9. Materials of Construction. Senior. Spring, 3 hours a week.

Lectures on the methods of manufacture, use and care of the principal building materials.

10. Heating and Ventilating. Senior. Winter, Spring, 3 hours a week.

Lectures on modern methods of heating and ventilating, and on the principles governing the design and construction of heating and ventilating systems. Design of a heating and ventilating system for a building.

COURSE IN CIVIL ENGINEERING.

This course is designed to prepare young men for entrance upon professional practice in such work as the location, construction and maintenance of highways, railroads, streets and pavements, waterworks systems, sewerage systems, irrigation canals and ditches, reservoirs, bridges, masonry structures; the surveying and mapping of areas; draughting. A thorough grounding in the principles underlying engineering construction is given with their application to as many special lines as time will permit. In addition to this technical training, the student also receives instruction in general studies and in the sciences; and a liberal amount of time is devoted to drawing to enable him properly to represent his designs and other engineering work on paper.

The fifth year, leading to the degree of Civil Engineer, offers opportunity for more advanced study in some of the branches of Civil Engineering than can be had within the limits of the four years course, and includes some work in Electrical Engineering and Mechanical Engineering. While a bachelor's degree is conferred at the end of the four years, every student should follow this with the more technical course covered by the fifth year's work.

COURSE IN CIVIL ENGINEERING.

Note.—The number in parenthesis following the name of a department refers to the number of the course as shown in the description of that department. Practice is indicated by italics.

FRESHMAN YEAR.

Fall	Hours per week
English (1) Rhetoric and Comp.	6
History (1) Mediaeval and Modern.	4
Mathematics (1) Geometry.	6
Physics (1) Elementary.	2
Drawing (1) (5)	5
Mech. Engineering (13)	5

Winter	Hours per week
English (1) Rhetoric and Comp.	6
History (1) Mediaeval and Modern.	4
Mathematics (1) (2) Geometry, Algebra.	6
Physics (1) Elementary.	2
Drawing (1) (5)	5
Mech. Engineering (13)	5

Spring	Hou per wee
English (1) Rhetoric and Comp.	6
History (1) Mediaeval and Modern.	4
Mathematics (1) (2) Geometry, Algebra.	6
Physics (1) Elementary.	2
Drawing (1) (5)	5
Mech. Engineering (14)	5

SOPHOMORE YEAR.

Fall.	
Drawing (6) Descriptive Geometry.	3
English (2) Literature.	3
Languages (1) *or* (3) French or German.	3
Mathematics (4) Trigonometry.	6
Physics (2) General.	3
Drawing (2) (7)	5
Mech. Engineering (14)	5

Winter.	
Drawing (6) Descriptive Geometry.	3
English (2) Literature.	3
Languages (1) *or* (3) French or German.	3
Mathematics (5) (6) Algebra, Analytics.	6
Physics (2) General.	3
Drawing (2) (7)	5
Physics (2)	5

Spring.	
Civil Engineering (1) Surveying and Leveli	3
English (2) Literature.	3
Languages (1) *or* (3) French or German.	3
Mathematics (6) Analytics.	6
Physics (2) General.	3
Drawing (2) (7)	5
Civil Engineering (1)	5
Physics (2)	5

* For one-half the term only.

JUNIOR YEAR.

Fall	Hours per week	Winter	Hours per week	Spring	Hours per week
Civil Engineering (2) City, Topo. Surv. and R. R. Eng.	6	Civil Engineering (3) Highways and Pavements.	3	Civil Engineering (4) Mechanics of Materials.	6
Physics (3) Electricity.	3	Chemistry (1) Inorganic.	3	Chemistry (1) Inorganic.	3
Languages (2) *or* (4) French or German.	3	Languages (2) *or* (4) French or German.	3	Languages (2) *or* (4) French or German.	3
Mathematics (7) Calculus.	3	Mathematics (7) Calculus.	3	Mathematics (7) Calculus.	3
		Military Science (1) Drill Regulations.	3	*Civil Engineering* (4)	2½
Civil Engineering (2)	5	*Civil Engineering* (2)	2½	*Chemistry* (1)	2½
Drawing (8)	2½	*Chemistry* (1)	2½	*Drawing* (8)	5
Physics (3)	2½	*Drawing* (8)	2½		
		Physics (3)	2½		

SENIOR YEAR.

Fall.		Winter.		Spring.	
Civil Engineering (5) Roofs and Bridges.	3	Civil Engineering (5) Roofs and Bridges.	3	Civil Engineering (5) Roofs and Bridges.	3
Civil Engineering (6) Hydraulics.	3	Civil Engineering (6) Irrigation and Drainage.	6	Civil Engineering (8) Sanitary Engineering.	6
Civil Engineering (7) Masonry Structures.	3	Chemistry (4) Geology.	3	Chemistry (4) Geology.	3
History (3) Industrial.	3	History (4) Political Economy.	3	History (4) Political Economy.	3
Mathematics (8) Calculus.	3				
Military Science (2)	1	*Civ. Engineering* (5) (6)	7½	*Civil Engineering* (5)	7½
Civil Engineering (5)	10	*Chemistry* (4)	2½		

DEPARTMENT OF CIVIL ENGINEERING.

PROFESSOR NAGLE.
ASSOCIATE PROFESSOR SPENCE.

Good text-books, supplemented by explanations and lectures, form the basis of instruction in this department. Practice in the field, in the testing laboratory and in the designing room follows the instruction in the class-room and serves to impress upon the student's mind the principles and facts there taught him. An effort is made to develop an appreciation of the degree of precision required in different kinds of work and the conditions under which approximate methods are admissible or desirable. Thoroughness in a few of the more important subjects which embody the basic principles of engineering is sought throughout the work, and many exercises and problems are assigned the students in order more clearly to illustrate the application of these principles.

The courses are as follows:

1. Plane Surveying and Leveling. Sophomore. Spring, 3 hours a week; with practice.

Recitations throughout the term, and field practice with compass, transit, and level. Engineering students take this course in the spring term of the Sophomore year. Agricultural students take practically the same course in the winter term of the Senior year. Plane Surveying, *Raymond.*

Practice, 5 hours a week for one-half the term.

2. City and Topographic Surveying, Railroad Engineering. Junior. Fall, 6 hours a week; with practice.

Recitations and practice. Practice consists in the applications of the transit and stadia method, and the plane table, in topographic work; in curve problems, preliminary and location surveys for a short line in railroad engineering. Slope stakes are set on this line and quantities computed. Plane Surveying, *Raymond;* Field Manual for Railroad Engineers, *Nagle.*

Practice, Fall, 5 hours, Winter, 2½ hours a week.

3. Highway Construction and City Pavements. Junior. Winter, 3 hours a week.

Recitations. Roads and Pavements, *Baker.*

4. Mechanics of Materials. Junior. Spring, 6 hours a week; with practice.

Recitations, supplemented by practice. Mechanics of Materials, *Merriman.*

Practice, 2½ hours a week.

5. Stresses in Roofs and Bridges, Bridge and Structural Design. Senior. Fall, Winter, Spring, 3 hours a week; with practice.

Recitations and practice. Roofs and Bridges, Parts I, II and III, *Merriman* and *Jacoby*.

Practice, Fall, 10 hours, Winter, 5 hours, Spring, 7½ hours a week.

6. Hydraulics, Irrigation Engineering and Land Drainage. Senior. Fall, 3 hours; winter, 6 hours a week; with practice.

Recitations, lectures and practice. Hydraulics, *Merriman;* Manual of Irrigation Engineering, *Wilson.*

Practice, Winter, 2½ hours a week.

7. Masonry Structures. Senior. Fall, 3 hours a week.

Recitations. Masonry Construction, *Baker.*

8. Sanitary Engineering. Senior. Spring, 6 hours a week.

This course includes the collection, pumping, storage, purification, and distribution of potable waters; the sewerage and drainage of cities and the disposal of sewage. Water Supply Engineering, *Folwell;* Sewerage, *Folwell.*

9. Stresses. Junior. Fall, 3 hours a week.

Recitations and practice. Required of students in Mechanical Engineering. Roofs and Bridges, Parts I and II, *Merriman* and *Jacoby.*

10. Mechanics of Materials. Junior. Winter, Spring, 3 hours a week.

Recitations. Required of students in Mechanical Engineering. Mechanics of Materials, *Merriman.*

11. Astronomy. Fifth Year. Fall, 3 hours a week.

Recitations, supplemented by such field determinations as the equipment of the department will permit. General Astronomy, *Young.*

12. Geodesy and Least Squares. Fifth Year. Fall, Winter, 3 hours a week.

Recitations, supplemented by field practice in triangulation, etc. Method of Least Squares, *Merriman;* Precise Surveying and Geodesy. *Merriman.*

13. Bridge and Structural Designing. Fifth Year. Fall, Winter, Spring, 3 hours a week.

Recitations, supplemented by practice in the drawing room and testing laboratory. Higher structures, the braced and oblique arch, etc.,

are investigated in this course. Roofs and Bridges, Part III and IV, *Merriman.*

14. General Civil Engineering. Fifth Year. Winter, Spring, 3 hours a week.

Recitations. This course will include Foundations and such items of general engineering practice as it may be found desirable to incorporate.

15. Contracts and Specifications. Fifth Year. Spring, 3 hours a week.

Recitations. Contracts and Specifications, *Johnson.*

NOTE.—Some of the foregoing courses, particularly those offered during the fifth year, are subject to such modification as may be found desirable, as determined by the progress made by the several classes.

EQUIPMENT.

The department owns the following engineering field and office instruments.

Three surveyor's transits, one of which has Gurley's solar attachment; one complete transit with Saegmuller solar attachment; one complete transit with Davis solar screen; four engineer's wye levels; two dumpy levels; one drainage level; one terracing level; three hand levels; one solar compass; four needle compasses; one sextant; one plane table; one aneroid barometer; one odometer; one pedometer; three planimeters, two polar and one rolling; one pantograph; one universal drafting machine; one reckoning machine; one Thacher calculating instrument; one Fuller slide rule; one Faber slide rule; one sewer slide rule; two stadia slide rules; one Colby's topographical protractor and several small protractors; an assortment of drafting instruments and tables; an assortment of measuring chains, tapes, marking pins, flag poles, leveling rods, etc.

The department has three cement testing machines of 1000 pounds capacity each, two automatic and one hand power, together with such other apparatus as is needed in testing cement. Also two Rhiele testing machines arranged for making tension, compression and cross-breaking tests, one hand power machine of 20,000 pounds capacity and one automatic and autographic machine of 100,000 pounds capacity; one abrasion cylinder for testing paving brick; one current meter; one Boyden hook gauge and two smaller gauges; a number of pressure gauges; one twelve inch Pelton water motor; nozzles of various sizes; weirs and platform scales, etc.; together with blue-prints, photographs, engravings, etc., of existing structures; also a hand camera and other photographic apparatus.

There is a fairly well assorted library of standard and current engineering literature in the department, to which students have access.

COURSE IN ELECTRICAL ENGINEERING.

The object of the instruction in this course is to prepare young men for professional work in the various branches of applied electricity.

The rapidly increasing number of electrical plants and circuits for power transmission, lighting, transportation, telephoning and telegraphing demands men who are prepared to design, construct and operate them. The studies in the course outlined have been carefully selected with this demand in view.

COURSE IN ELECTRICAL ENGINEERING.

Note.—The number in parenthesis following the name of a department refers to the number of the course as shown in the description of that department. Practice is indicated by italics.

FRESHMAN YEAR.

Fall	Hours per week	Winter	Hours per week	Spring	Hours per week
English (1) Rhetoric and Comp.	6	English (1) Rhetoric and Comp.	6	English (1) Rhetoric and Comp.	6
History (1) Mediaeval and Modern.	4	History (1) Mediaeval and Modern.	4	History (1) Mediaeval and Modern.	4
Mathematics (1) Geometry.	6	Mathematics (1) (2) Geometry, Algebra.	6	Mathematics (1) (2) Geometry, Algebra.	6
Physics (1) Elementary.	2	Physics (1) Elementary.	2	Physics (1) Elementary.	2
Drawing (1) (5)	5	*Drawing* (1) (5)	5	*Drawing* (1) (5)	5
Mech. Engineering (13)	5	*Mech. Engineering* (13)	5	*Mech. Engineering* (14)	5

SOPHOMORE YEAR.

Fall.		Winter.		Spring.	
Drawing (6) Descriptive Geometry.	3	Drawing (6) Descriptive Geometry	3	Civil Engineering (1) Surveying and Leveling.	3
English (2) Literature.	3	English (2) Literature.	3	English (2) Literature.	3
Mathematics (4) Trigonometry.	6	Mathematics (5) (6) Algebra, Analytics.	6	Mathematics (6) Analytics.	6
Mech. Engineering (1) Power.	3	Mech. Engineering (1) Power.	3	Mech. Engineering (2) Slide Valve Gears.	3
Physics (2) General.	3	Physics (2) General.	3	Physics (2) General.	3
Drawing (2) (7)	5	*Drawing* (2) (7)	2½	*Drawing* (2) (7)	5
Mech. Engineeering (14)	5	*Mech. Engineering* (15)	2½	*Civil Engineering* (1)	5*
		Physics (2)	5	*Physics* (2)	5*

* For one-half the term only.

JUNIOR YEAR.

Fall	Hours per week	Winter	Hours per week	Spring	Hours per week
Elect'l Engineering (1) Electrical Measurement.	3	Chemistry (1) Inorganic.	3	Elect'l Engineering (1) Electrical Measurement.	3
Chemistry (1) Inorganic.	3	Languages (1) *or* (3) French or German.	3	Chemistry (5) Metallurgy.	3
Languages (1) *or* (3) French or German.	3	Mathematics (7) Calculus.	3	Languages (1) *or* (3) French or German.	3
Mathematics (7) Calculus.	3	Military Science (1) Drill Regulations.	3	Mathematics (7) Calculus.	3
Physics (3) Electricity.	3	Physics (4) Electricity and Magnet.	3	Physics (4) Electricity and Magnet.	3
Elect'l Engineering (1)	5	*Elect'l Engineering* (1)	2½	*Elect'l Engineering* (1)	2½
Chemistry (1)	2½	*Chemistry* (1)	2½	*Chemistry* (5)	2½
Drawing (8)	2½	*Drawing* (8)	2½	*Drawing* (8)	2½
		Physics (3)	2½	*Physics* (3)	2½

SENIOR YEAR.

Fall.		Winter.		Spring.	
Elect'l Engineering (2) Electrical Machinery.	3	Elect'l Engineering (2) Electrical Machinery.	3	Elect'l Engineering (2) Electrical Machinery.	3
Military Science (2)	1	Elect'l Engineering (3) Specifications.	3	Elect'l Engineering (3) Specifications.	3
History (3) Industrial.	3	History (4) Political Economy.	3	History (4) Political Economy.	3
Languages (2) *or* (4) French or German.	3	Languages (2) *or* (4) French or German.	3	Languages (2) *or* (4) French or German.	3
Mathematics (8) Calculus.	3	Mech. Engineering (6a)	3	Mech. Engineering (6a)	3
Mech. Engineering (3)	3	*Elect'l Engineering* (2) (3) (4)	10	*Elect'l Engineering* (2) (4)	7½
Elect'l Engineering (2) (4)	10				

DEPARTMENT OF PHYSICS AND ELECTRICAL ENGINEERING.

PROFESSOR BROWN.
MR. LEAR.

The work in Physics is designed to give students a thorough understanding of the general principles of Physics and to prepare them for the more technical engineering studies.

Instruction is given by recitation, lectures, experiment, lantern illustration, and laboratory work. In the laboratory each student takes measurements to calibrate instruments and to verify the physical laws.

The courses in Physics will be found on page 97.

The foundation for the course in Electrical Engineering is laid in the departments of mathematics, drawing, and mechanical engineering. On account of the close relation existing between the work of an electrical engineer and that of a mechanical engineer the courses are practically identical during the first two years.

In the advanced work of the course the student is required to apply the principles previously learned to designing, building, and testing electrical machines and appliances.

EQUIPMENT.

This department is well equipped with apparatus for lecture table experiments. There is a fine projection lantern for general projection of slides and a good supply of slides.

In the laboratory there is sufficient apparatus to enable the students in general Physics to perform individual experiments in mechanics, pneumatics, heat, light, sound, and electricity, and to enable the students in Electrical Engineering to become familiar with all the operations that would be required of them in the practice of their profession.

The electrical laboratory is equipped with direct and alternating current dynamos and motors, a station photometer, transmission dynamometers, and a full line of measuring instruments. There are also a number of frames of dynamos and motors that are used by the students in learning to repair and wind these machines.

The equipment for the students in Electrical Engineering is augmented by the fact that the direct connected generators in the power house, their exciters and measuring instruments, and the motors used to operate the Textile School laboratories are available for tests as practical operating plants after the students have performed the required experiments on the machines located in the laboratory.

Students are encouraged to read books relating to their work, and for this purpose the department library is available.

A dark room has been fitted up for the use of those students who have their own cameras and developing outfits and for those who are using the department equipment for photographic records and physical experiments.

The courses in Electrical Engineering are as follows:

1. Electrical Measurements. Junior. Fall, Spring, 3 hours a week; with practice.

Lectures and recitations on the theory, standardization, and use of electrical measuring instruments, including galvanometers, bridges, voltmeters, ammeters, condensers, wattmeters, and recording instruments. Electrical Measurements, *Carhart* and *Patterson.*

Practice, Fall, 5 hours, Winter, Spring, 2½ hours a week.

The practice includes accurate measurements of various electrical quantities, as resistance, capacity, inductance, etc., and the effect of change of temperature and change of position on these quantities. It includes also a study of the various types of batteries to determine their adaptability to various uses.

2. Electrical Machinery. Senior. Fall, Winter, Spring, 3 hours a week; with practice.

Lectures and recitations on the design, construction, testing, and use of dynamos and motors and on the calculation, erection, and maintenance of transmission lines. Dynamo Electric Machinery, *Sheldon.*

Practice, Fall, Winter, 7½ hours, Spring 5 hours a week.

The practice includes the operation of dynamos and motors, the determination of the hysteresis in fields and armatures, the determination of characteristics, as series, shunt, and compound wound; the determination of efficiencies and regulation. For these determinations there are available, aside from the machines used exclusively for testing in the laboratory, all of the machines located in the power house furnishing power to the laboratories and lights on the campus.

Part of this practice is given in connection with Course 3. Testing of Electro-Magnetic Machinery, *Swenson* and *Frankenfield.*

3. Specifications and Contracts. Senior. Winter, Spring, 3 hours a week.

Lectures and recitations on the elements of specifications and contracts, including estimates and methods of construction, underwriters rules and their application to contracts, time limits, penalty clauses, etc.

For *practice* see Course 2.

4. Electrical Designing. Senior. Fall, Winter, Spring, 2 1-2 hours a week; with practice.

Designing and drawing electrical circuits, instruments and machines.

5. Electrical Designing. Fifth Year. Fall, Winter, Spring, 6 hours a week; with practice.

Lectures, recitations, and calculations on the design of electrical instruments and machines. Each student will be required during the year to complete at least one design of a dynamo, motor or electrical instrument, making detail drawings of all the parts.

Practice, 2½ hours a week.

Most of the work is done on the drawing board. It includes the laying out of electrical circuits for various purposes and later the making of detail drawings for some machine or instrument designed by him.

6. Advanced Electrical Instruments and Machinery. Fifth Year. Fall, Winter, Spring, 3 hours a week; with practice.

This course is practically a continuation of Courses 1 and 2 and deals with the more complicated instruments and machines, such as are used for alternating currents and high potentials. Part of the time will be devoted to telephone circuits and their "faults."

Practice, 5 hours a week.

The practice is in continuation of that given in Course 3. Aside from the machines that are tested in the laboratories, each student will make inspections and reports on various outside plants. At some time during the year students will be given an opportunity to make a tour of inspection to some of the larger plants in the State.

7. Electrical Power. Fifth Year. Fall, Winter, Spring, 3 hours a week.

Lectures and recitations on the installation and operation of power and lighting plants and the lines leading from them. Required of students in Civil Engineering and in Mechanical Engineering.

COURSE IN MECHANICAL ENGINEERING.

The object of the course in Mechanical Engineering is to give the student such training as will enable him to take charge of men and tools, erect machinery, lay out plans, etc. This not only necessitates a study of engineering problems, but also demands a broad foundation of useful knowledge, and a training which leads as much as possible to originality in thought and quick perception of the objects sought. With this in view, the subjects in this course are carefully selected.

COURSE IN MECHANICAL ENGINEERING.

Note.—The number in parenthesis following the name of a department refers to the number of the course as shown in the description of that department. Practice is indicated by italics.

FRESHMAN YEAR.

Fall	Hours per week	Winter	Hours per week	Spring	Hours per week
English (1) Rhetoric and Comp.	6	English (1) Rhetoric and Comp.	6	English (1) Rhetoric and Comp.	6
History (1) Mediaeval and Modern.	4	History (1) Mediaeval and Modern.	4	History (1) Mediaeval and Modern.	4
Mathematics (1) Geometry.	6	Mathematics (1) (2) Geometry, Algebra.	6	Mathematics (1) (2) Geometry, Algebra.	6
Physics (1) Elementary.	2	Physics (1) Elementary.	2	Physics (1) Elementary.	2
Drawing (1) (5)	5	*Drawing* (1) (5)	5	*Drawing* (1) (5)	5
Mech. Engineering (13)	5	*Mech. Engineering* (13)	5	*Mech. Engineering* (14)	5

SOPHOMORE YEAR.

Fall.		Winter.		Spring.	
Drawing (6) Descriptive Geometry.	3	Drawing (6) Descriptive Geometry.	3	Civil Engineering (1) Surveying and Leveling.	3
English (2) Literature.	3	English (2) Literature.	3	English (2) Literature.	3
Mathematics (4) Trigonometry.	6	Mathematics (5) (6) Algebra, Analytics.	6	Mathematics (6) Analytics.	6
Mech. Engineering (1) Power.	3	Mech. Engineering (1) Power.	3	Mech. Engineering (2) Slide Valve Gears.	3
Physics (2) General.	3	Physics (2) General.	3	Physics (2) General.	3
Drawing (2) (7)	5	*Drawing* (2) (7)	2½	*Drawing* (2) (7)	5
Mech. Engineering (14)	5	*Mech. Engineering* (15)	5	*Civil Engineering* (1)	5*
		Physics (2)	2½	*Physics* (2)	5*

*For one-half the term only.

JUNIOR YEAR.

Fall.	Hours per week	Winter.	Hours per week	Spring.	Hours per week
Chemistry (1) Inorganic.	3	Chemistry (1) Inorganic.	3	Chemistry (5) Metallurgy.	3
Civil Engineering (9) ses.	3	Civil Engineering (10) Mechanics of Materials.	3	Civil Engineering (10) Mechanics of Materials.	3
Mathematics (7) Calculus.	3	Mathematics (7) Calculus.	3	Mathematics (7) Calculus.	3
Mech. Engineering (3) Indicator.	3	Military Science (1) Drill Regulations.	3	Mech. Engineering (4) Machine Design.	3
Physics (3) Electricity.	3	Physics (4) Electricity and Magnet.	3	Physics (4) Electricity and Magnet.	3
Chemistry (1)	2½	*Chemistry* (1)	2½	*Chemistry* (5)	2½
Drawing (8)	2½	*Drawing* (8)	2½	*Drawing* (8)	2½
Mech. Engineering (15)	5	*Mech. Engineering* (16)	2½	*Mech. Engineering* (17)	2½
		Physics (3)	2½	*Physics* (3)	2½

SENIOR YEAR.

Fall.		Winter.		Spring.	
Mech. Engineering (5) Machine Design.	6	Mech. Engineering (5) Power Plants.	3	Mech. Engineering (7) Designing.	9
Chemistry (6) Industrial.	3	Chemistry (6) Industrial.	3	Mech. Engineering (6a) Power Plants.	3
History (3) Industrial.	3	History (4) Political Economy.	3	History (5) Political Economy.	3
Mathematics (8) Calculus.	3	Mech. Engineering (6) Thermodynamics.	6		
Military Science (2)	1	*Chemistry* (6)	5		
Mech. Engineering (5) (17)	10	*Mech. Engineering* (18)	5	*Mech. Engineering* (18)	7½

DEPARTMENT OF MECHANICAL ENGINEERING.

PROFESSOR WHITLOCK.
ASSISTANT PROFESSOR DRUMMOND.
MR. SNYDER.
MR. HARRAL.

The object of this department is so to combine theory and practice that, after deriving a theoretical knowledge of the subject from the text-books of standard writers, the student may apply that knowledge in a thoroughly practical manner. With this theoretical preparation, the mind grasps the salient points and avoids the difficulties of the more practical part of the work. The work is carried on by means of practice in the shops and drawing-room, and by lectures and text-books.

First, the machinery of transmission is taken up and discussed, and special attention is paid to shafting, belts, speed pulleys, gear wheels and kindred subjects; and a foundation of general knowledge is laid in which the student gets information concerning the various appliances in common use in boiler and engine rooms. This familiarizes him not only with their general character but also their value from a practical standpoint. Upon this foundation is built up a more particular and specific knowledge of the appliances in common use. The steam engine is given special attention and all its parts are carefully studied and discussed.

In all the courses the theoretical points are illustrated as far as possible by reference to tools and appliances in use in the shops and steam plant of the College.

The work in practice begins in the carpenter shop, which is equipped with benches and sets of tools, consisting of those in common use among carpenters. Each student is taught, in the beginning of his work, the use of the tools and the importance of keeping them in good order and in their proper places. The work consists of exercises, embracing the principles of the ordinary joints met with in practice. Each of these exercises depends more or less on those preceding it, and they become more and more difficult, thus carrying the student from "squaring" a piece of wood to the construction of a small bridge truss. The work is carried on from drawings similar to those found in any of our regular shops, and thus the student learns not only to read mechanical drawings, but to construct the article wanted with only such drawings for a guide.

Having finished the woodwork, and acquired a knowledge of edged tools, the student is transferred to the blacksmith shop. Here, as in the carpenter shop, the exercises at first are very simple, becoming more and more difficult, until, at the end, the student has made welds of different kinds, a chain with hook and swivel, and has

forged out and tempered several tools, such as cold chisels and punches. He is then transferred to the machine shop for woodturning, and instruction is given in both inside and outside turning, everything being made from drawings furnished. Then follows instruction in the use of iron working machinery, and here are taught the principles of cutting and shaping the metals in common use.

Throughout the course in the shops the student receives systematic instruction, and the work is so graded as to bring into use, as far as possible, those principles which have been taught in the class-room.

The instruction throughout the course is made as practicable as possible, and at the same time is of such a nature as to call for intelligent thought in connection with the manual labor.

In connection with certain courses offered by other departments, a student will be enabled to acquire a good foundation for a knowledge of railway mechanical engineering by taking courses numbered 1, 2, 3, 4, 6, and 11 to 16 inclusive.

Special attention is called to the fact that all work is made from drawings similar to those which are used in all of our first-class machine shops, thus compelling the workman to think for himself, and avoid becoming a mere automaton.

The courses are as follows:

1. Power and Power Transmission. Sophomore. Fall, Winter, 3 hours a week.

Mechanical principles involved in the use of gear wheels, shafting, belting, levers, boilers, engines, water wheels and motors, pumping machinery and other mechanical appliances in general use.

Power and Power Transmission. *Kerr.*

2. Slide Valve Gears. Sophomore. Spring, 3 hours a week.

A practical study of the action of plain slide valves; fundamental principles of balanced and multiple ported valves; discussion of sliding and swinging eccentrics, etc.

Slide Valve Gears, *Halsey.*

3. Indicator and Steam Engine Economy. Junior. Fall, 3 hours a week.

A study of the use of the indicator in detecting defects in methods of steam distribution, setting valves, economy of water consumption, etc. Accompanied by practical use of the instrument on engines in the department and in the steam plant.

Indicator and Steam Engine Economy, *Hemenway.*

4. Machine Design. Junior. Spring, 3 hours a week.

Principles and methods of designing shafts, pulleys, gear wheels, etc.

Machine Drawing and Design, *Low* and *Bevis.*

5. Machine Design. Senior. Fall, 6 hours; Winter, 3 hours a week; with practice.

Application of the principles of designing to the construction of steam engines, pumps, etc. Recitations from the text and work on the drawing tables.

Machine Drawing and Design, *Low* and *Bevis.*

Practice, Fall, 2½ hours a week.

6. Thermodynamics of the Steam Engine. Senior. Winter, 6 hours a week.

A study of heat and the properties of steam, especially in regard to their application to use in the steam engine.

6a. The Mechanical Engineering of Power Plants. Senior. Winter, Spring, 3 hours a week.

Principles of power plant machinery and its selection.

7. Designing, Laboratory, etc. Senior. Spring, 12 hours a week.

This course will consist of special work in designing and laboratory work following similar lines as far as possible; work on thesis under personal direction of instructors, etc.

8. Steam Boilers. Fifth Year. Fall, 6 hours a week.

A study of the design and care of boilers; the choice of boilers for different uses; a practical study of the running and management of boilers as shown in the different plants at the College.

9. High Speed Steam Engines and Governors. Fifth Year. Fall, 3 hours a week.

A special study of the application of the principles of machine design to the high speed engine; and the throttling and automatic governors.

10. Pumps and Pumping Machinery. Fifth Year. Winter, 3 hours a week.

11. Steam Plants. Fifth Year. Winter, 6 hours a week.

Choice and arrangement of machinery in different kinds of plants; placing of boilers to best advantage; best methods for placing piping for steam, water or other liquids and gases.

12. Mechanical Laboratory. Fifth Year. Spring, 9 hours a week.

Special work in the laboratory bearing on subjects and principles studied during the year.

13. Carpentry. Freshman. Two terms, 5 hours a week. Practice.

Instruction in bench work, using the tools in common use among carpenters, and illustrating the joints used in ordinary woodwork.

Bench Work in Wood, *Goss.*

14. Blacksmithing. Freshman, Spring; Sophomore, Fall, 5 hours a week. Practice.

Instruction in forging iron and steel, welding and tempering.

Freshman and Sophomore, or Sophomore and Junior.

15. Wood-turning. Sophomore, Winter; Junior, Fall, 5 hours a week. Practice.

Instruction in outside and inside turning.

Freshman and Sophomore, or Sophomore and Junior.

16. Bench Work in Iron. Junior. Winter, 2 1-2 hours a week. Practice.

Chipping, filing and scraping.

Handbook for Apprenticed Machinists, *Brown & Sharpe Mfg. Co.*

17. Machine Work in Iron. Junior. Spring, 2 1-2; Senior, Fall, 7 1-2 hours a week. Practice.

Lathe, planer, shaper, milling machine, grinder, drill press.

Handbook for Apprenticed Machinists, *Brown & Sharpe Mfg. Co.*

18. Engineering Laboratory. Senior. Winter, 5; Spring, 7 1-2 hours a week. Practice.

Engine and boiler tests, indicator work, testing gauges, thermometers, indicator springs, pumps, pipe coverings, blowers, water motors, etc.

Engineering Laboratory Practice, *Smart.*

The order in which the practice courses are given will vary for the several sections.

All of the above courses are required of mechanical engineering students; courses 13 and 14 abridged of agricultural students; course 14 of civil engineering students; courses 1, 2, 3, 6a, 14, and 15 abridged of electrical engineering students; courses 1, 2, 13, 14, and 15 abridged of textile engineering students.

In addition to the above, each student in the Mechanical Engineering course will be required in his Senior year to assume for a short time the duties of assistant engineer of the College steam plant under direction of the regular engineers. This plant comprises a ten-ton ice plant with cold storage, an electric light plant, a laundry, and waterworks with standpipe, deep well and force pumps.

EQUIPMENT.

Carpenters' benches with vise and set of tools; the latter consisting of hammer, cross-cut and panel saws, try square, mallet, chisels, marking gauge, planes and dividers. Various small tools, as framing squares, braces, bits, circular plane, beading planes, etc.; blacksmith's forges with power blast, anvils, hammers, tongs, hardies, etc.; sixteen light lathes, one planer, one shaper, one milling machine, one drill press, one universal grinder, one drill grinder; grindstone, emery wheels, circular saw, jig saw, band saw, drills and reamers; small tools, including gauges, rules, cold chisels, punches, etc.; models of steam engines, parts of machines, valves, oilers, etc.; drawing tables, T-squares and instruments; indicators and planimeters; various appliances for use in the engineering laboratory, such as thermometers, pyrometer, draft gauges, etc.; books of reference, class-room furniture, blackboards, etc.

COURSE IN TEXTILE ENGINEERING.

The object of this course is to prepare young men for entering the field of textile manufacturing. The unprecedented development of the cotton milling industry in the South has brought about an era of prosperity and created a strong demand for educated young men in this industry. The State of Texas offers excellent advantages for the manufacture of cotton goods in its vast supply of raw material, intelligent labor, and excellent climatic conditions, and we believe cotton manufacturing will develop as rapidly as skilled and capable management familiar with the local conditions is to be had. The studies outlined have been selected with a view of giving a thorough theoretical and practical training in the manufacture of cotton goods.

The aim has been so to arrange the course as to give the student a good general education, and for this reason technical instruction in this department is confined almost wholly to the Junior and Senior years, textile subjects being taken up in the Spring term of the Sophomore year.

A fifth year's course, leading to the degree of Textile Engineer, will afford the opportunity for more advanced study.

COURSE IN TEXTILE ENGINEERING.

Note.—The number in parenthesis following the name of a department refers to the number of the course as shown in the description of that department. Practice is indicated by italics.

FRESHMAN YEAR.

Fall.	Hours per week	Winter.	Hours per week	Spring.	Hours per week
English (1) Rhetoric and Comp.	6	English (1) Rhetoric and Comp.	6	English (1) Rhetoric and Comp.	6
History (1) Mediaeval and Modern.	4	History (1) Mediaeval and Modern.	4	History (1) Mediaeval and Modern.	4
Mathematics (1) Geometry.	6	Mathematics (1) (2) Geometry, Algebra.	6	Mathematics (1) (2) Geometry, Algebra.	6
Physics (1) Elementary.	2	Physics (1) Elementary.	2	Physics (1) Elementary.	2
Drawing (1) (5)	5	*Drawing* (1) (5)	5	*Drawing* (1) (5)	5
Mech. Engineering (13)	5	*Mech. Engineering* (13)	5	*Mech. Engineering* (14)	5

SOPHOMORE YEAR.

Fall.		Winter.		Spring.	
Drawing (6) Descriptive Geometry.	3	Drawing (6) Descriptive Geometry.	3	Textile Engineering (1) Yarn Manufacturing.	2
				Textile Engineering (8) Designing.	1
English (2) Literature.	3	English (2) Literature.	3	English (2) Literature.	3
Mathematics (4) Trigonometry.	6	Mathematics (5) (6) Algebra. Analytics	6	Mathematics (6) Analytics.	6
Mech. Engineering (1) Power.	3	Mech. Engineering (1) Power.	3	Mech. Engineering (2) Slide Valve Gears.	3
Physics (2) General.	3	Physics (2) General.	3	Physics (2) General.	3
Drawing (2) (7)	5	*Drawing* (2) (7)	2½	*Drawing* (2) (8)	2½
Mech. Engineering (14)	5	*Mech. Engineering* (15)	2½	*Textile Engineering* (1) (4)	7½
		Physics (2)	5		

JUNIOR YEAR.

Fall.	Hours per week
Textile Engineering (2) Yarn Manufacturing.	3
Textile Engineering (8) Designing.	3
Chemistry (1) Inorganic.	3
Mathematics (7) Calculus.	3
Physics (3) Electricity.	3
Chemistry (1)	2½
Drawing (8)	2½
Textile Engineering (2) (4)	7½

Winter.	Hours per week
Textile Engineering (2) Yarn Manufacturing.	1
Textile Engineering (8) Designing.	2
Chemistry (1) Inorganic.	3
Mathematics (7) Calculus.	3
Military Science (1) Drill Regulations.	3
Physics (4) Electricity and Magnet.	3
Chemistry (1)	2½
Physics (3)	2½
Textile Engineering (2) (4)	7½

Spring.	Hours per week
Textile Engineering (2) Yarn Manufacturing.	3
Textile Engineering (5) Power Weaving.	1
Textile Engineering (9) Designing.	2
Chemistry (2) Organic.	3
Mathematics (7) Calculus.	3
Physics (4) Electricity and Magnet.	3
Chemistry (2)	2½
Physics (3)	2½
Textile Engineering (2) (5)	7½

SENIOR YEAR.

Fall.	
Textile Engineering (3) Yarn Manufacturing.	3
Textile Engineering (6) Power Weaving.	2
Textile Engineering (9) Designing.	4
Chemistry (2) Organic.	3
History (3) Industrial.	3
or Textile Engineering (11) Designing	3
Military Science (2)	1
Textile Engineering (3) (6)	10
Chemistry (2)	2½

Winter.	
Textile Engineering (3) Yarn Manufacturing.	3
Textile Engineering (6) Power Weaving.	2
Textile Engineering (9) Designing.	4
Chemistry (7) Textile.	3
History (4) Political Economy	3
or Textile Engineering (11) Designing	3
Textile Engineering (3) (7)	10
Chemistry (7)	2½

Spring.	
Textile Engineering (3) Yarn Manufacturing.	2
Textile Engineering (9) Designing.	4
Textile Engineer'g (10) Mill Management	3
Chemistry (7) Textile.	3
History (4) Political Economy.	3
or Textile Engineering (11) Designing	3
Textile Engineering (3) (7)	7½
Chemistry (7)	2½

DEPARTMENT OF TEXTILE ENGINEERING.

PROFESSOR WIER,
MR. BAGLEY.
MR. EARLE.

The Legislature having made a liberal provision for the establishment of a Textile School as a department of the College, a suitable building of modern cotton mill construction has been erected and an excellent equipment has been secured. The building offers excellent opportunities for the study of the details of mill construction.

The equipment has been carefully selected with a view of having a wide variety of the leading makes of cotton mill machinery represented. This will afford the student the opportunity of becoming familiar with such machinery as he is likely to come in contact with in the mills of the country.

Instruction will be confined to the manufacture of cotton goods and a thorough training will be given in the manufacture of many classes of cotton yarn and fabrics.

Instruction is given by the use of text books, lectures, recitations and the practical operation of the machines in the actual production of yarns and fabrics.

The instruction in this department is divided into four sections, viz., Yarn Manufacturing, Weaving, Designing and Chemistry and Dyeing. These subjects are so treated as to cover the manufacture of all classes of cotton yarns and fabrics.

The courses are as follows:

YARN MANUFACTURE.

1. Yarn Manufacture. Sophomore. Spring, 2 hours a week; with practice.

Recitations and lectures on the machinery and processes necessary in the manufacture of coarse cotton yarns. Elementary instruction is given, with a view of imparting a general knowledge of the machinery and processes, including the study of raw material; mixing; mixing machinery; construction and operation of feeder and picking machinery and accessory apparatus used; carding; drawing, slubbing and roving; ring spinning; spooling; reeling, and twisting.

Calculations to determine the necessary gearing to produce given numbers, speeds and production.

Cotton Mill Processes and Calculations, *Tompkins.*

Practice, Spring, 5 hours a week for one-half the term.

The practice is given with the object of familiarizing students with the operation of the various machines and processes above mentioned.

2. Yarn Manufacture. Junior. Fall, 3 hours; Winter, 1 hour; Spring, 3 hours a week; with practice.

Recitations and lectures; a continuation and more exhaustive treatment of the subjects of course 1. In addition, the study of warp preparation and warp preparation machinery is taken up.

Cotton Mill Processes and Calculations, *Tompkins.*

Practice, Fall, Winter, Spring, 5 hours a week.

The practice includes the operation and adjustment of the machines of this division and the manufacture of yarns according to approved organizations.

3. Yarn Manufacture. Senior. Fall, Winter, 3 hours; Spring, 2 hours a week; with practice.

Recitations and lectures on the machinery and processes necessary in the manufacture of fine yarns, including the sliver lap machine, ribbon lap machines and comber and a study of the spinning mule and mule spinning, organizations for the manufacture of all classes of yarns and the preparation of fancy warps.

Practice, Fall, Winter, 6 hours; Spring, 5 hours a week.

The practice consists of the erection, resetting, and adjustment of carding, spinning and warp preparation machinery; the manufacturing of single and ply yarns according to original organizations; experimental work to determine the most advantageous manipulation of stock in the various processes of yarn manufacture.

WEAVING.

4. Hand Loom Weaving. Sophomore. Spring; Junior, Fall, Winter, 2 1-2 hours a week. Practice.

The student's first practice in weaving is had on hand looms, which are operated by unskilled hands with greater facility than are power looms. The student here becomes familiar with the handling of warps and yarns and with the general processes in weaving. The greatest value of hand-loom weaving lies in its connection with designing. The student, having made the necessary designs, proceeds with the preparation of the warp, and the drawing-in, reeding and tieing-in of the warp in the loom, the construction of harness, chain and starting up of the loom. Parallel with the work in designing, a wide variety of patterns is produced on the hand looms preparatory to the practice in power-weaving which is begun in the spring term of the Junior year.

5. Power Weaving. Junior. Spring, 1 hour a week; with practice.

Lectures and recitations on the construction, operation and adjustment of plain and fancy looms; a study of the timing and setting of

the various parts, and explanation of the various types of dobbies and other mechanisms applied to power looms.

Practice, Spring, 2½ hours a week.

The practice consists of the operation of plain looms, cam looms for twills and satteens, and dobby looms; the setting and timing of the various parts; loom fixing; the drawing-in of warp and the "starting up" of new looms.

6. Power Weaving. Senior. Fall, Winter, 2 hours a week; with practice.

Continuation of Course 5.

Practice, Fall, 4 hours a week.

7. Power Weaving. Senior. Winter, 4; Spring, 2 1-2 hours a week. Practice.

Fancy dobby and jacquard weaving, the tieing up and changing of jacquard harness; card cutting from original jacquard designs; the study and operation of finishing machinery and the finishing of fabrics woven in the department.

DESIGNING.

8. Designing. Sophomore. Spring, 1 hour; Junior, Fall, 3 hours; Winter, 2 hours a week.

This course includes the classification of fabrics; the elementary principles of fabric structure; the explanation of the various technical terms applied to designs and fabrics; the representation of drawing-in drafts and harness chains.

This course in designing is supplemented by practice in hand-loom weaving, Course 4.

Reference Books: Technology of Textile Design, *Posselt;* Cotton Cloth Designing, *Holmes.*

9. Designing. Junior. Spring, 2 hours; Senior, Fall, Winter, Spring, 4 hours a week.

Instruction in the designing of more elaborate and fancy madrases, dress goods, shirtings, etc., including lenos, two and three ply fabrics, pile fabrics, etc.; cloth analysis including the dissection of small samples with a view to the reproduction of fabrics; jacquard designing, including a study of the various types of jacquard machines, tie-ups, jacquard sketching and designing.

This course is supplemented by the practice in power weaving where a practical application of the above subject is had.

Reference Books: Technology of Textile Design, *Posselt;* Cotton Cloth Designing, *Holmes.*

GENERAL.

10. Mill Management. Senior. Spring, 3 hours a week.

Lectures and recitations on the general management of cotton mills, including the study of fire protection, cost of production in the various departments, labor conditions and wages, care of mill and mill village.

11. Designing. Senior. Fall, Winter, Spring, 3 hours a week.

This course is supplementary to course 9, being devoted more particularly to jacquard designing, the study of jacquard mechanisms and the study of color harmony as applied to textile fabrics.

The student may elect History 3 and 4 in lieu of this course.

EQUIPMENT.

GENERAL EQUIPMENT.—The building is equipped with the latest and most approved system of automatic sprinklers for protection against fire, furnished by the General Fire Extinguisher Co., of Providence, R. I.; Webster low pressure vacuum system of steam heat, installed by General Fire Extinguisher Co., Providence, R. I.; the "Drosophore" and Vortex systems of humidifying, installed by the American Moistening Co., Boston, Mass. The power is furnished by eight electric motors conveniently placed for the proper distribution of power as required. The entire system of shafting, pulleys and hangers has been furnished by the Jones & Laughlin Steel Co., of Pittsburg, Pa.

YARN MANUFACTURE.—*Picking.* One Howard & Bullough automatic feeder and opener connected by cleaning trunk and gauge box to Howard & Bullough breaker-lapper; one Kitson finisher lapper; one Kitson thread extractor; one pair combination scales; one pair platform scales.

Carding. One Howard & Bullough 40-inch revolving flat card; two traverse grinders; one drum grinder; stripping and burnishing rolls.

Drawing. One Howard & Bullough four-delivery drawing frame, with electric stop motions.

Roving. One Woonsocket 11 in. by 5½ in. slubber, with Daly's differential motion; one Saco & Pettee 9 in. by 4½ in. intermediate roving frame with improved differential motion; one Howard & Bullough 7 in. by 3½ in. fine roving frame with Tweedale's differential motion.

Spinning. One Howard & Bullough 112 spindle spinning frame, with combination builder motion for warp and filling; one Draper Co.'s Week's banding machine; one D. A. Tompkins Co.'s banding machine.

Spooling. One Draper spooler; one Easton & Burnham spooler; one Easton & Burnham skein spooler; two Barber knotters.

Twisting. One Draper 90 spindle twister with combination builder for warp and filling wind.

Winding. One Universal Winding Co.'s Winding Machine and cones;

one winding machine for hand loom bobbins; one quill winding machine (to be selected).

Reeling. One combination reel, 44 spindles from the D. A. Tompkins Co.

Warping. One Draper slasher warper, with balling machine.

Slashing. One Cohoes cylinder slasher with 6-beam creel, size kettle overhead track and differential hoist.

The section of yarn manufacture is well equipped with all necessary supplies, including bobbins, spools, doffing boxes and trucks, change gears, etc.

WEAVING.—*Hand Loom.* The hand loom weaving section is equipped with 10 hand looms, with 4x4 boxes, 24 harness dobbins arranged for 4-beam work; warping, beaming and drawing-in frames.

Power Weaving. One Northrop print with loom made by the Draper Co.; one 40-spindle Northrop loom made by the Draper Co.; one Kilburn, Lincoln & Co.'s plain power loom; one Kilburn, Lincoln & Co.'s fancy gingham loom; one Crompton & Knowles plain loom for twills and satteens; one Crompton gingham loom; one Knowles "Gem Dress Goods" loom; one Crompton Damask loom with 600 hook, double cylinder, double lift Halton jacquard; one Crompton & Knowles cotton loom with 400 hook jacquard; one Whitin cotton loom with 20 harness dobby; one Whitin Satteen loom; one Draper drawing-in frame; one D. A. Tompkins Co. drawing-in frame; one Jacob K. Altemus bobbin winding machine, one 600's piano card cutting machine; one card lacing frame.

The power weaving section is also equipped with all necessary supplies and accessories, including loom beams, warping frames, harness frames, heddles, and change gears.

CLOTH FINISHING.—This section is equipped with all necessary machinery for the finishing of the fabrics woven in the department, including one cloth inspecting machine; one railway sewing and rolling machine; one brushing and calendering machine; one cloth folding machine.

DONATIONS.

The following donations have been made:

From Mr. J. E. Sirrine, Greenville, S. C.: Half the cost of the plans and specifications for the textile building.

From the D. A. Tompkins Co., Charlotte, N. C.: One 44-spindle reel; one banding machine; six slasher beams; one drawing-in frame.

From the General Fire Extinguishing Co., Providence, R. I.: Half value on the following: Webster Vacuum steam heating system and one automatic sprinkler system for fire protection.

From the Parke Manufacturing Co., Charlotte, N. C.: Part value on one power elevator.

From the Howard & Bullough American Machine Co., Pawtucket, R. I.: Half value on the following: One self-feeding opener; one breaker

lapper; one cleaning trunk; one gauge box; one revolving flat card; one 4-delivery drawing frame with electric stop motions; one 64-spindle, 7 in. by 3½ in. roving frame; one 112-spindle spinning frame.

From the Kitson Machine Works, Lowell, Mass.: Eighteen steel lap rods; one set truck levers for moving machinery; half value on one finisher lapper; one thread extractor.

From the Draper Co., Hopedale, Mass.: One slasher warper and balling machine; one Week's banding machine; one 40-spindle spooler; one 90-spindle twister; one Northrop print cloth loom; one Northrop satteen loom; one improved drawing-in frame; temples for all looms in the department.

From the Saco & Pettee Machine Shops, Newton Upper Falls, Mass.: Half value on one intermediate roving frame.

From the American Moistening Co., Boston, Mass.: Complete System of "Vortex" and "Drosophore" humidifiers.

From Kilburn, Lincoln & Co., Fall River, Mass.: One plain power loom; one gingham loom.

From the Curtis & Marble Machine Co., Worcester, Mass.: Half value on the following: One cloth-inspecting machine; one railway sewing and rolling machine; one brushing and calendering machine; one cloth folding machine.

From the Universal Winding Co., Boston, Mass.: One 6-head cone and tube winding machine.

From Barber & Colman, Boston, Mass.: Two Barber knotters.

From the Crompton & Knowles Loom Woorks, Worcester, Mass.: Half value on the following: One plain loom for twill and satteens; one Crompton gingham loom; one Knowles "Gem Dress Goods" loom; one Crompton damask loom; one cotton loom with 400-hook jacquard.

From the Easton & Burnham Machine Co., Pawtucket, R. I.: One 36-spindle bobbin spooler; one 36-spindle skein spooler.

From Thos. Halton's Sons, Philadelphia, Pa.: One 600-hook jacquard machine.

From the Cohoes Iron Foundry & Machine Co., Cohoes, N. Y.: Half value on the following: One cylinder slasher; one size kettle; one overhead track and differential hoist.

From Jacob K. Altemus, Philadelphia, Pa.: One 12-spindle bobbin winding machine.

From John Royle & Sons, Paterson, N. J.: Half value on the following: One 600's piano card cutting machine; one card lacing frame.

From the DeHaven Mfg. Co., Brooklyn, N. Y.: Lot of spinning and twister travelers.

From Victor Shaw Ring Traveler Co., Providence, R. I.: Lot of spinning frame and twister travelers.

From the Standard Ring Traveler Co., Providence, R. I.: Lot of spinning frame and twister travelers.

From the National Ring Traveler Co., Providence, R. I.: Lot of spinning frames and twister travelers.

From the Shultz Belting Co., St. Louis, Mo.: Half value on all belting used in the department.

From Morris & Co., Groveville, N. J.: Four "Morris Duck Baskets."

From the General Electric Co., Schenectady, N. Y.: Part value on all electric motors used in the department.

From the James Hill Mfg. Co., Providence, R. I.: 24 vulcanized fibre roving cans.

From the T. C. Entwistle Co., Lowell, Mass.: Part value on the following: Two traverse card grinders; one drum card grinder; one burnishing roll; one stripping roll.

From Waters-Pierce Oil Co., Houston, Texas: 60 gallons of lubricating oil.

From the Jones & Laughlin Steel Co., Pittsburg, Pa.: Three fourths value on all shafting, pulleys and hangers used in the school.

From the Woonsocket Machine & Press Co., Woonsocket, R. I.: Half value on one 36-spindle slubber.

From the Cling-Surface Mfg. Co., Buffalo, N. Y.: Cling-Surface for all belting in the school.

From the Whitin Machine Works, Whitinsville, Mass.: Half value on the following: One 25 harness dobby loom; one heavy pattern satteen loom.

The following periodicals are received gratis by the department.

Textile Manufacturers Journal.
Textile World Record.
American Cotton Manufacturer.
The Tradesman.
Dyer's Bulletin.
Wool and Cotton Reporter.
The Mill and Shop.
Fibre and Fabric.
Southern Farm Magazine.

FIFTH YEAR'S WORK IN ENGINEERING.

In the engineering courses a fifth year's work is offered to young men who have obtained the bachelor's degree in this College or other institution approved by the Faculty. The work of this year leads to the professional degree of Civil Engineer, Electrical Engineer, Mechanical Engineer, or Textile Engineer. The instruction is entirely technical and consists of advanced work in various engineering subjects as shown in the tabular statement following. It is believed that the graduate will find it well worth while to take this work, either immediately after graduation, or after a year or more spent in active work; and that the wider acquaintance with engineering subjects, and the power of investigation so acquired will prove to be decidedly promotive of his professional advancement. No drill is required.

COURSE IN CIVIL ENGINEERING.

(Leading to the degree of Civil Engineer.)

FIFTH YEAR.

Fall.	Hours per week	Winter.	Hours per week	Spring.	Hours per week
vil Engineering (11) Astronomy.	3	Civil Engineering (14) Gen'l Civil Engineering.	3	Civil Engineering (14) Gen'l Civil Engineering.	3
vil Engineering (12) Least Squares.	3	Civil Engineering (12) Least Squares.	3	Civil Engineering (15) Contracts.	3
vil Engineering (13) Bridge Designing.	3	Civil Engineering (13) Bridge Designing.	3	Civil Engineering (13) Bridge Designing.	3
lect'l Engineering (7) Electrical Machinery.	3	Elect'l Engineering (7) Electrical Machinery.	3	Elect'l Engineering (7) Electrical Machinery.	3
ech. Engineering Power.	3	Mech. Engineering Pumps.	3	Mech. Engineering Indicator.	3
vil Engineering	7½	*Civil Engineering*	7½	*Civil Engineering*	7½

COURSE IN ELECTRICAL ENGINEERING.

(Leading to the degree of Electrical Engineer.)

FIFTH YEAR.

Fall.		Winter.		Spring.	
ect'l Engineering (5) Electrical Designing.	6	Elect'l Engineering (5) Electrical Designing.	6	Elect'l Engineering (5) Electrical Designing.	6
ect'l Engineering (6) Adv. Elec. Machinery.	3	Elect'l Engineering (6) Adv. Elec. Machinery.	3	Elect'l Engineering (5) Adv. Elec. Machinery.	3
vil Engineering	3	Civil Engineering	3	Civil Engineering	3
ech. Engineering	3	Mech. Engineering	3	Mech. Engineering	3
ect'l Eng. (5) (6)	7½	*Elect'l Eng.* (5) (6)	7½	*Elect'l Eng.* (5) (6)	7½

COURSE IN MECHANICAL ENGINEERING.

(Leading to the degree of Mechanical Engineer.)

FIFTH YEAR.

Fall.		Winter.		Spring.	
ech. Engineering (8) Steam Boilers.	6	Mech. Engineer'g (10) Pumps.	3	Mech. Engineer'g (12) Laboratory.	12
ech. Engineering (9) High Speed Engines.	3	Mech. Engineer'g (11) Steam Plants.	6		
vil Engineering (6) Hydraulics.	3	Civil Engineering	3	Civil Engineering	3
ect'l Engineering (7)	3	Elect'l Engineering (7)	3	*Elect'l Engineering* (7)	3
ech. *Engineering*	7½	*Mech. Engineering*	7½	*Mech. Engineering*	7½

GENERAL STUDIES.

DEPARTMENT OF CHEMISTRY AND MINERALOGY.

ACTING PROFESSOR FRAPS.
ASSOCIATE PROFESSOR HASKELL.
MR. HARGIS.

The work in Chemistry begins with the Sophomore year, Agricultural Course, and, with geology, is continued through three years. The civil engineering students have chemistry in the Junior year for two terms; while the students of the mechanical and electrical engineering courses have chemistry and metallurgy through the Junior year; the mechanical engineering students continuing industrial chemistry for two terms in the Senior year. The textile engineering students take chemistry and dyeing for two years, beginning in the Junior year.

Experimental and laboratory work supplement class room instruction.

The courses offered are described below.

Courses 1, 2, 3, 4, are required of agricultural students; 1 and 4 of civil engineering students; 1 and 5 of electrical engineering students; 1, 5, and 6 of mechanical engineering students; 1, 2 and 7 of textile engineering students.

1. Descriptive Inorganic Chemistry. Two Terms, 3 hours a week; with practice.

Recitations and laboratory experiments. The course deals with the principles of the science, and with a study in detail of the common elements and their compounds. The lectures are fully illustrated by experiments, specimens and charts. One or more laboratory periods are consumed by the student in preparation for the lectures of the following day. Inorganic Chemistry, *Remsen* or *Newell.*

Practice, 2½ hours a week.

The practice begins with experiments in general chemistry, which renders the student familiar with ordinary chemical apparatus and manipulations, and emphasizes the facts learned in the class room. The qualitative examination of suitable substances follows. Qualitative Analysis, *Noyes.*

2. Organic Chemistry. Two Terms, 3 hours a week; with practice.

Descriptive lectures in elementary Organic Chemistry, with special attention to the bearing the science has upon Agricultural Chemistry,

for agricultural students. For textile engineering students emphasis is laid upon organic compounds important in textile chemistry and dyeing.

Practice, 2½ hours a week.

Elementary tests for the identification and purity of organic compounds, followed by synthesis of simple compounds and a study of the properties of important organic bodies.

3. Agricultural Chemistry. Junior, Winter, Spring; Senior, Fall, 3 hours a week; with practice.

The chemical principles underlying agriculture and their special relation thereto, are studied in detail, with particular reference to the conditions in this State. The chemistry of soils, natural and artificial fertilizers, irrigation waters, and feed stuffs; the chemistry of plant growth, and changes that take place in the development of a crop, are some of the subjects which receive attention. Lectures. Reference book: Soils and Fertilizers, *Snyder.*

Practice, Junior 2½, Senior, 5 hours a week.

Quantitative analysis. The analysis of simple compounds is first taken up, then bodies of agricultural importance are studied, such as water, soils, feed-stuffs, etc. Quantitative Analysis, *Talbot.*

4. Geology. Senior. Winter, Spring, 2 hours a week; with practice.

Geology has been assigned to the department, and is taught for three hours a week the last two terms of the Senior year. General Geology, with some special attention to economic Geology is discussed under its various divisions. The subject is illustrated by maps, models, charts, and hand specimens of rocks and fossils. Geology, *Scott.*

Practice, 2½ hours a week.

Determinative mineralogy. Civil engineering students have this practice only in the winter term.

5. Metallurgy. Junior. Spring, 3 hours a week; with practice.

Special attention is given to the metallurgy of iron and steel. Attention is called to impurities occurring in ores, and the influence these impurities exert upon methods of work and upon the finished products. The different fuels, fluxes and refractory materials are carefully considered in their relative importance and adaptability. Metallurgy, *Sexton.*

Practice, 2½ hours a week. Blowpipe Analysis.

6. Industrial Chemistry. Senior. Fall, Winter, 3 hours a week; with practice.

This subject is given by text supplemented by lectures and when practicable an excursion of several days duration is made to the most important manufacturing establishments in the State. Practical men who are recognized as authorities in their different branches of work are from time to time invited to address the class.

The course is given to Mechanical Engineering students, and the subjects treated are those which are likely to prove of most aid in the future work of these students. The manufacture of reagents that serve as the foundation of manufacturing chemistry, is taken up first. This is followed by a study of established industries in the State, and other processes that would be of particular importance in the development of the resources of the State.

The manufacture of acids and alkalies, the manufacture and refining of sugar, cotton-seed oil, petroleum, salt, the manufacture of fertilizers, ceramics, glass, soap, paper, glucose, starch and the tanning of leather are some of the subjects considered.

It is the aim not only to make the student acquainted with the details of these manufacturing processes, but to broaden his view and conception of the general importance of manufacturing interests to the people of the South. Outlines of Industrial Chemistry, *Thorp*. Lectures. Reference book, Industrial Chemistry, *Sadtler*.

Practice, Winter, 5 hours a week. Assaying.

7. Textile Chemistry and Dyeing. Senior. Winter, Spring, 3 hours a week; with practice.

A study of the chemical and physical properties of textile fibers and fabrics, dyestuffs and mordents, with the principles involved in the coloring of textiles.

The text is supplemented by experiments in the dye laboratory; particular attention being given to the different methods of dyeing cotton and wool in both class room and laboratory. In the dye laboratory a study is made of the textile soaps and oils; with tests as to fastness toward alkalies, light and washing. It is intended that the study of dyeing shall be founded upon an accurate knowledge of the chemical principles underlying it; and the dye laboratory, as well as the dye-house proper, is used in such manner as to impress this knowledge. Careful attention is given to chemical examination of textile fabrics, particularly of cotton, wool, silk, jute and ramie. Principles of Dyeing, *Fraps*.

Practice, 2½ hours a week.

EQUIPMENT.

That portion of the building which is devoted to Chemistry is divided into six laboratories with convenient supply rooms and balance rooms, two lecture rooms having a suitable apparatus room, offices, library, and museum.

The different laboratories are designated as follows: State and Station, Assay, Sophomore, Junior, Senior, and Private. The furniture in these laboratories is for the most part slate, soap-stone, or oak, with soap-stone sinks. Each student is assigned to a lock-desk, which contains the necessary equipment. The laboratories are ventilated by efficient hoods.

The lecture room for general chemistry is provided with more than one hundred terraced seats.

A good reference library is accessible to the students of the department. References are frequently given to familiarize the student with standard works. The museum occupies a large, well-lighted room.

Besides the work of instruction, the chemical work of the Experiment Station, the Fertilizer control and the Feed control are carried on in the chemical department.

DEPARTMENT OF ARCHITECTURAL ENGINEERING AND DRAWING.

The courses in drawing are as follows:

1. Freehand Drawing. Freshman. Fall, Winter, Spring, 2 hours a week. Practice.

Sketching of objects, buildings, streets and interiors, from models, memory, statement and imagination. Pencil and water color rendering of foliage, shrubbery, trees and their environment. Landscape composition. Plant study in pencil and water color. Elementary color theory. The students in the Freshman and Sophomore classes are divided into sections according to the technical studies which they pursue and the work in freehand drawing is varied to correlate it with the technical work.

2. Freehand Drawing. Sophomore. Fall, Winter, Spring, 1 hour a week. Practice.

Sketching of common objects, tools, implements, etc. Pencil study of still life and of antique ornament from the cast. Applications of perspective sketching. Water color work.

3. Freehand Drawing. Junior. Fall, Winter, Spring, 2 hours a week. Practice.

Sketching of architectural detail. Charcoal study of antique ornament. Antique figure, in pencil and charcoal. Pencil, pen-and-ink and water color rendering.

4. Freehand Drawing. Senior. Fall, Winter, 2 hours a week. Practice.

Life drawing. Artistic anatomy and figure composition. Elements of interior decoration and color harmony.

5. Mechanical Drawing. Freshman. Fall, Winter, Spring, 3 hours a week. Practice.

Use and care of drawing instruments, instrumental drawing, freehand and mechanical lettering, geometrical constructions, projections,

intersections, developments and axonometric projection. Mechanical Drawing, Part I, *Giesecke*.

This course is required of all engineering students, and, in an abbreviated form, of the agricultural students, who draw only two hours a week.

6. Descriptive Geometry. Sophomore. Fall, Winter, 3 hours a week.

Recitations and blackboard exercises in the study of problems relating to the point, line, plane, cylinder, cone and double curved surfaces of revolution. Descriptive Geometry, *Faunce*.

7. Descriptive Geometry. Sophomore. Fall, Winter, Spring, 4 hours a week. Practice.

A series of problems, worked out and inked on drawing paper, supplementing Course 6 and amplifying it by applying the principles of descriptive geometry to the solution of problems in shades and shadows, in parallel, angular, and oblique perspective, and in stereotomy. Mechanical Drawing, Part II, *Giesecke*.

8. Mechanical Drawing. Junior. Fall, Winter, Spring, 2 1-2 hours a week. Practice.

A series of drawings to familiarize the student with the methods of preparing working or shop drawings, to acquaint him with standard forms of screw threads, bolts, rivets, and gear teeth, with the methods of determining cam outlines, and to afford practice in tinting, tracing and blue-printing.

Students in the textile engineering course take only a part of courses 7 and 8 as shown in the course of study.

DEPARTMENT OF ENGLISH.

PROFESSOR FOUNTAIN.
ASSOCIATE PROFESSOR LOMAX.
MR. EMBRY.

The aim of this department is to give students such training as will enable them to use their mother tongue readily and accurately. An effort is made to teach the student to write well and to love good books. The instruction, therefore, is practical rather than theoretical. Frequent written exercises are required, and these exercises are not only carefully read by the instructor, but are also discussed in personal conferences with the individual student. In this way each student has his attention sharply called to his most frequent errors; and suggestions

especially adapted to his needs, are made. Experience proves that a student often gets more benefit from fifteen minutes personal conference with an instructor than he does from an hour's lecture in the class-room. The required work in English extends through the Freshman and Sophomore years.

The courses are as follows:

1. Rhetoric and Composition. Freshman. Fall, Winter, Spring, 6 hours a week.

This course consists of daily recitations, readings from masterpieces of literature in class, exercises in the various kinds of composition, personal conferences with individual students, brief writing and argumentation. In addition each student is required to read two classics a month.

The Essentials of Composition and Rhetoric, *Espenshade.*

2. English Literature. Sophomore. Fall, Winter, Spring, 3 hours a week.

The work offered the second year affords an opportunity for the student to obtain a general knowledge of the outline history of English Literature, the different stages of development being illustrated by reading and criticising the leading classics of each period. Students are also required to do a large amount of reading outside of the class-room and to submit written reports thereon. The work of composition writing is continued.

A History of English Literature, *Moody* and *Lovett.*

In all courses a monthly written exercise will be required throughout the Junior year and through the winter term of the Senior year.

DEPARTMENT OF HISTORY.

Professor Hutson.
Associate Professor Potts.

At present the insufficient knowledge of general history in the case of most applicants for admission makes it necessary for the two courses in history to include only the study of mediæval and modern history. It is hoped that eventually they may both be devoted to a closer study of those nations whose influence on the course of modern progress has been most striking and continuous.

Constant endeavor is made to teach the young men that the history of the race is full of social, political and economic problems still applicable to modern life, in spite of many changed conditions; and that the welfare of humanity now and hereafter depends largely upon the proper correlation of the present and the future with the fund of experience won in the

past; in other words, that there is vital meaning in the phrase "continuity of history."

The College library, which is emphatically the toolhouse of this department, contains many valuable histories, biographies and memoirs; and students are urged and encouraged in every way to make use of collateral reading and to acquire the habit of independent investigation.

The courses are as follows:

1. Mediaeval and Modern History. Freshman. Fall, Winter, Spring, 4 hours a week.

Introduction to the Middle Ages, *Emerton;* Modern History, *West.*

2. Mediaeval and Modern History. Freshman. Fall, Winter, Spring, 3 hours a week.

The Middle Ages, *Myers;* The Modern Age, *Myers.*

Course 1 is required of engineering students; course 2 of agricultural students.

ECONOMICS.

3. Industrial History of England. Senior. Fall, 3 hours a week.

Recitations, discussions, lectures, reports.

The purpose of this course is to give the student a general view of the progress of English industry, commerce, navigation and social conditions since the Middle Ages. Special attention is given to the break up of the manorial and guild systems and to the growth of the present factory system and modern methods of land tenure. Industrial and Social History of England, *Cheyney.*

4. Political Economy. Senior. Winter, Spring, 3 hours a week.

This course is designed to give a brief view of the fundamental principles of the subject. As far as practicable, special attention will be given to the theory of money, banking, taxation, free trade and protection. Introduction to Economics, *Bullock.*

5. Economics. Elective. Junior or Senior. Fall, Winter, Spring, 3 hours a week.

This course is designed to give a broader general view of economics in theory and in practice. Courses 3 and 4 are prerequisite. Principles of Economics, *Marshall;* Tariff History of the United States, *Tausig;* History and Theory of Banking, *Dunbar;* Money and Banking, *White.*

Courses 3 and 4 are required of all Seniors except those in the textile engineering course, and they elect History 3 and 4 or Textile Engineering 11.

DEPARTMENT OF LANGUAGES.

*Professor Bittle.
Associate Professor Campbell.
Adjunct Professor Powell.

It is the object of the department to impart a practical knowledge of German, Latin, French, or Spanish, such as will benefit the student in the prosecution of a scientific career.

To this end, the text-books used and the method of imparting instruction are practical. Latin is taught as an essential to a thorough understanding of English; German and French, because neither the specialist nor the general student can afford to be ignorant of those literatures; Spanish, in view of the rapidly growing intercourse between us and the Latin republics south of us; all of them, because systematology and scientific nomenclature are unintelligible without a knowledge of foreign languages.

Students coming to us, therefore, from the high schools of the State find here the opportunity to continue their linguistic studies by the side of agricultural and mechanical branches, to which those studies lend effective aid.

Courses 1 and 2, *or* 3 and 4 are required of civil and electrical engineering students.

The courses are as follows:

1. French. Fall, Winter, Spring, 3 hours a week.

A thorough drill in the elements of the language, its pronunciation, its grammatical forms, is given through oral and written exercises. The reading of simple text is undertaken as early as possible. French Grammar, *Fraser* and *Squair*.

2. French. Fall, Winter, Spring, 3 hours a week.

Course 1 is continued and the reading is gradually adapted to the scientific work of other departments. The speaking of the language is encouraged. Scientific Reader, *Bowen*. Selected texts.

3. German. Fall, Winter, Spring, 3 hours a week.

The student is drilled on grammatical forms, the grammar of the word and sentence, and introduced to the simpler written and spoken language. German Grammar, *Joynes-Meissner*.

* Died October 26, 1905.

4. German. Fall, Winter, Spring, 3 hours a week.

Course 3 is continued with a view to reading the scientific literature bearing on the work in other departments. Scientific German Reader, *Brandt* and *Day;* selected texts.

5. Latin. Elective. Fall, Winter, Spring, 3 hours a week.

Students who have studied Latin in the preparatory schools have the privilege of continuing the course; others who need a more solid foundation in grammatical studies will be drilled with that view in the grammar and elementary reading. Latin Grammar, *Allen;* Cæsar, Vergil, Cicero.

6. Latin. Elective. Fall, Winter, Spring, 3 hours a week.

Course 5 is continued, with all the text-reading possible.

7. Spanish. Elective. Fall, Winter, Spring, 3 hours a week.

The grammar of Spanish, with simple reading as early as possible. Spanish Grammar, *Hills* and *Ford,* with select texts.

8. Spanish. Elective. Fall, Winter, Spring, 3 hours a week.

Advanced grammar, written and oral exercises. Scientific texts for reading.

DEPARTMENT OF MATHEMATICS.

PROFESSOR PURYEAR.
ASSOCIATE PROFESSOR SMITH.
ASSOCIATE PROFESSOR JUNKIN.

Instruction in this department is given by the use of approved textbooks, supplemented by oral explanations and informal lectures. The student's knowledge of the subject is tested daily at the blackboard, and, in each course, written solutions of selected problems and review exercises involving the work of preceding courses are frequently assigned. Prominence is given to practical applications.

Of the courses named below, 1, 2, and 3 are required of Agricultural students; 1 to 8, inclusive, except 3, are required of Engineering students.

1. Plane and Solid Geometry. Freshman. Fall, 6 hours; Winter, Spring, 3 hours a week.

The course will include definitions, rectilinear figures, the circle, similar polygons, areas of polygons, regular polygons, measurements of the

circle, lines and planes in space, dihedral angles, polyhedral angles, polyhedrons, the cylinder, cone and sphere. Plane and Solid Geometry, *Wentworth.*

2. Algebra. Freshman. Winter, Spring, 3 hours a week.

The course will include quadratic equations, simultaneous quadratics, ratio, proportion, variation; arithmetical, geometrical and harmonical progressions; binomial theorem for positive integral exponents, permutations, combinations, limits. Complete Secondary Algebra, *Fisher* and *Schwatt.*

3. Plane Trigonometry. Sophomore. Fall, Winter, 3 hours a week.

Plane and Spherical Trigonometry, *Taylor* and *Puryear.*

4. Plane and Spherical Trigonometry. Sophomore. Fall, 6 hours a week.

The course will include goniometry, review of logarithms, solution of right triangles, problems of heights and distances, properties of triangles, solution of oblique triangles, geometrical applications and a brief treatment of spherical trigonometry. Plane and Spherical Trigonometry, *Taylor* and *Puryear.*

5. Advanced Algebra. Sophomore. Winter, 4 hours a week.

The course will include infinite series, undetermined coefficients, partial fractions, binomial theorem for any exponent, logarithms, logarithmic and exponential series, and such other topics as the time may allow. Complete Secondary Algebra, *Fisher* and *Schwatt.*

6. Analytic Geometry. Sophomore. Winter, 2 hours; Springs, 6 hours a week.

The course will include the straight line, transformation of co-ordinates, circle, ellipse, hyperbola, the general equation of the second degree, solid analytic geometry. Analytic Geometry, *Ashton.*

7. Differential and Integral Calculus. Junior. Fall, Winter, Spring, 3 hours a week.

The course will include differentiation, expansion of functions, indeterminate forms, functions of several variables, tangent and normal, curavature, evolute and involute, maxima and minima; integration, lengths, areas, volumes, moments of inertia. Differential and Integral Calculus, *Osborne.*

8. Calculus. Senior. Fall, 3 hours a week.

Continuation of course 7, with brief introduction to Analytical Mechanics. Differential and Integral Calculus, *Campbell.*

DEPARTMENT OF MILITARY SCIENCE.

CAPTAIN SARGENT.

It is the aim of this department to send forth the graduates of this institution thoroughly fitted to perform the duties of a subaltern in the regular service. As the course is compulsory, graduates are entitled to the benefits of free instruction at the General Service and Staff College at Fort Leavenworth, Kansas, and of the Officer's Schools at the different military posts.

The students are organized into a battalion of four companies, band and necessary staff, which are under the immediate charge of the Commandant.

The officers and non-commissioned officers are selected from the Senior, Junior and Sophomore classes. They are appointed by the President upon the recommendation of the Commandant. Their appointments are dependent upon the active and soldierly performance of their duties, their sense of duty and responsibility, and their general good conduct and class standing.

The military system is an aid in enforcing discipline and securing regularity in the performance of academic duties, and tends to inculcate in the students habits of truthfulness and manliness of character, which characterize young men as gentlemen.

The courses are as follows:

1. Drill Regulations. Junior. Winter, 3 hours a week.

The course includes infantry drill regulations through the schools of the soldier, company and battalion, both in close and extended order; reviews, inspections, parades, guard mounting, guard duty, articles of war, small arms, firing regulations and instruction in making military records and property returns. It includes also lectures upon tactics, and upon modern fire arms.

U. S. Infantry Drill Regulations, Guard Manual, Small Arms Firing Regulations, oral and written recitations.

2. Military Science. Senior. Fall, 1 hour a week.

This course includes the study of Napoleon's Italian Campaigns, in which the class is given lessons and required to stand a written examination. In connection with the lessons given to the class, the instruction also includes a discussion and lectures upon organization, discipline, mobilization, marches, bases of operations, lines of communication and strategical principles.

Napoleon Bonaparte's First Campaign, *Sargent;* The Campaign of Marengo, *Sargent.*

3. Drill. All classes. Fall, Spring, 3 hours a week.

Infantry drill through the schools of the soldier, company and battalion in close and extended order, advance and rear guard, out-posts and marches, battalion review, inspection, parade escort of the colors, guard mounting, target practice for the Senior class, instruction in company reports, muster rolls, rosters, etc.

Drills end December 1st and begin again March 1st; but during the intervening months on the regular drill days, when the weather is pleasant inspections or dress parades are held.

The best drilled company of the battalion has the honor of carrying the trophy flag for a year. This is a handsome silk flag which was presented to the corps by a friend of the College.

DEPARTMENT OF PHYSICS AND ELECTRICAL ENGINEERING.

The courses in Physics are as follows:

1. Elementary Physics. Freshman. Fall, Winter, Spring, 2 hours a week.

Experiments, recitations, and problems in elementary mechanics, heat, light, sound, electricity, and magnetism. High School Physics, *Carhart & Chute.*

2. General Physics. Sophomore. Fall, Winter, Spring, 3 hours a week; with practice.

Lectures, recitations, experiments, lantern illustrations and problems in the general principles of Mechanics, Heat, Light and Sound. University Physics, *Carhart.*

Practice. Winter, half of Spring, 5 hours a week.

In the practice, the intention is to give the student some skill in handling instruments and train him in the fundamental requirements of physical quantities. Each student is required to determine a number of physical constants, to calibrate the various instruments in the laboratory, to make accurate measurements of areas, volumes, weights, lengths, diameters, densities and elasticity. These experiments are performed by the students either individually or in sections of from two to four. The experiments are not considered completed till the students have accurately calculated the desired constant from the data secured. Laboratory Physics, *Miller.*

For students in the mechanical engineering course the practice in the winter term is reduced to 2 1-2 hours a week; for textile engineering students the practice is confined to the winter term.

3. Elementary Electricity. Junior. Fall, 3 hours a week; with practice.

Lectures, recitations, and lantern illustrations in Electricity and magnetism. This course is a continuation of Course 2.

Practice, two terms, 2½ hours a week. The practice includes measurements of electrical and magnetic quantities.

4. Electricity and Magnetism. Junior. Winter, Spring, 3 hours a week.

Lectures and recitations in the theory of electricity and magnetism and their applications to electrical machines and measuring instruments. The completion of courses 2 and 3 is required for entrance to this course.

5. General Physics. Junior. Fall, Winter, Spring, 3 hours a week; with practice.

This course is similar to courses 2 and 3 but covers three terms what is covered there in four terms, leaving out numerous problems and illustrations that are chiefly useful to engineers. The course includes lectures, recitations, and experiments in mechanics, heat, light, sound, electricity, and magnetism.

Practice, 2½ hours a week, including experiments in properties of matter, heat, light, sound, electricity and magnetism.

Courses 2 and 3 are required of all engineering students; course 4 of students in electrical, mechanical and textile engineering; course 5 is required of agricultural students.

ELECTIVE COURSES.

Elective courses extending through two years are offered upon the following conditions:

1. A new student, in order to enter upon an elective course, must be able to pass the entrance examinations in English Grammar, Composition, Rhetoric, Arithmetic, Algebra through quadratic equations, Plane Geometry.

2. A regular student in order to transfer to an elective course must have the consent of his parent or guardian and of the Faculty; he must also have passed on at least two subjects in the Sophomore or a higher class at the examinations held at the end of the spring term. No student in the Junior Class reported at the end of the session as deficient in more than two subjects will be allowed to take an elective course. The transfer to an elective course may be made only at the beginning of a term.

3. Every student upon receiving permission from the Faculty to take an elective course must elect, *in conformity to the regular schedule,* studies amounting to at least *eighteen* hours per week and practice amounting to at least *seven* hours per week, besides drill; the course must be largely industrial in character and must be submitted for approval to the Committee on Elective Courses and the heads of departments concerned. In the second year all the work must be in classes above the Sophomore.

4. He must hand to the chairman of the committee on the *first day of each term* a list of his studies, properly signed.

5. A student in an elective course upon the completion of two full years work as defined above, will be entitled to a certificate signed by the President and the heads of the departments in which he studied.

6. Elective students shall be subject to all military duties and to the Rules and Regulations just as are regular students.

TEXT-BOOKS USED IN THE SEVERAL DEPARTMENTS.

FRESHMAN CLASS.

ANIMAL HUSBANDRY: Judging Live Stock, *Craig.*

DRAWING: Mechanical Drawing, Part I, *Giesecke.*

ENGLISH: The Essentials of Composition and Rhetoric, *Espenshade.*

HISTORY: Introduction to the Middle Ages, *Emerton;* The Middle Ages, *Myers;* The Modern Age, *Myers;* Modern History, *West.*

MATHEMATICS: Plane and Solid Geometry, *Wentworth;* Complete Secondary Algebra *Fisher* and *Schwatt.*

MECHANICAL ENGINEERING: Bench Work in Wood, *Goss.*

PHYSICS: High School Physics, *Carhart* and *Chute.*

PLANT HUSBANDRY: Plant Culture, *Goff.*

SOPHOMORE CLASS.

BOTANY: Botany, *Bailey;* Plant Relations, *Coulter;* Flora of the Southern States, *Chapman.*

CHEMISTRY: *Remsen's* Briefer Course; Qualitative Analysis, *Noyes.*

CIVIL ENGINEERING: Plane Surveying, *Raymond.*

DRAWING: Descriptive Geometry, *Faunce;* Mechanical Drawing, Part II, *Giesecke.*

ENGLISH: English Literature, *Moody* and *Lovett.*

ENTOMOLOGY: Manual for Study of Insects, *Comstock.*

FARM HUSBANDRY: Principles of Agriculture, *Voorhees.*

LANGUAGES: German Grammar, *Joynes-Meissner;* Spanish Grammar, *Hills* and *Ford;* French Grammar, *Fraser* and *Squair.*

MATHEMATICS: Complete Secondary Algebra, *Fisher* and *Schwatt;* Plane and Spherical Trigonometry, *Taylor* and *Puryear;* Analytic Geometry, *Ashton.*

MECHANICAL ENGINEERING: Power and Power Transmission, *Kerr;* Slide Valve Gears, *Halsey.*

PHYSICS: University Physics, *Carhart;* Laboratory Physics, *Miller.*

PLANT HUSBANDRY: Principle of Vegetable Growing, *Bailey.*

JUNIOR CLASS.

ANIMAL HUSBANDRY: Breeds of Live Stock, *Shaw;* Stock Feeding, *Henry.*

ARCHITECTURAL ENGINEERING: Building Construction, Part II, *Kidder;* A History of Architecture, *Fletcher.*

CHEMISTRY: Descriptive Chemistry, *Newell;* Organic Chemistry, *Remsen;* Laboratory Exercises in Organic Chemistry, *Garrett* and *Harden;* Metallurgy, *Sexton;* Analytical Chemistry, *Talbot;* Blowpipe Analysis, *Nason.*

CIVIL ENGINEERING: Plane Surveying, *Raymond;* Field Manual for Railroad Engineers, *Nagle;* Mechanics of Materials, *Merriman;* Roofs and Bridges, Parts I and II, *Merriman* and *Jacoby;* Roads and Pavements, *Baker.*

ELECTRICAL ENGINEERING: Electrical Measurements, *Carhart* and *Patterson.*

ENTOMOLOGY: Insects Injurious to Staple Corps, *Sanderson.*

FARM HUSBANDRY: Agricultural Physics, *King;* Soils and Crops of the Farm, *Morrow* and *Hunt.*

LANGUAGES: French Scientific Reader, *Bowen;* German Scientific Reader, *Brandt* and *Day;* Spanish Reader, *Ramsey.*

MATHEMATICS: Differential and Integral Calculus, *Osborne.*

MECHANICAL ENGINEERING: Handbook for Apprenticed Machinists, *Brown* and *Sharpe Mfg. Co.;* Indicator and Steam Engine Economy, *Hemenway;* Machine Design, *Low* and *Bevis.*

MILITARY SCIENCE: U. S. Infantry Drill Regulations, Guard Manual, Small Arms Firing Regulations.

PHYSICS: Elementary Electricity and Magnetism, *Jackson.*

PLANT HUSBANDRY: Principles of Fruit Growing, *Bailey;* Plant Breeding, *Bailey;* Spraying of Plants, *Lodeman.*

VETERINARY SCIENCE: Comparative Anatomy of the Domestic Animals, *Chauveau;* Anatomy of the Horse, *McFadyean;* Anatomié des Pferdes, *Liesering;* Veterinary Medicine, Vol. IV, *Law;* Pathology, and Therapeutics of the Domestic Animals, *Friedberger* and *Frohner; Flemming's* Translation of *Neuman;* Operative Veterinary Surgery, *Moller.*

SENIOR CLASS.

ARCHITECTURAL ENGINEERING: Architectural Engineering, *Freitag.*

BOTANY: Physiology of Plants, *Darwin* and *Acton;* Text-book of

Practical Botany, *Strasburger;* Molds, Mildews and Mushrooms, *Underwood;* Diseases of Plants, *Tubeuf* and *Smith.*

CHEMISTRY: Geology, *Scott;* Industrial Chemistry, *Thorpe;* Blowpipe Analysis, *Nason;* Principles of Dyeing, *Fraps.*

CIVIL ENGINEERING: Masonry Construction, *Baker;* Contracts and Specifications, *Johnson;* Roofs and Bridges, Parts, I, II, III, *Merriman* and *Jacoby;* Hydraulics, *Merriman;* Manual of Irrigation Engineering, *Wilson;* Water Supply Engineering, *Folwell;* Sewerage, *Folwell.*

ELECTRICAL ENGINEERING: Dynamo-Electric Machinery, *Sheldon;* Testing of Electro-Magnetic Machinery, *Swenson* and *Frankenfield.*

FARM HUSBANDRY: Irrigation and Drainage, *King.*

HISTORY: Industrial and Social History of England, *Cheney;* Introduction to Economics, *Bullock.*

MATHEMATICS: Differential and Integral Calculus, *Campbell.*

MECHANICAL ENGINEERING: Machine Drawing and Design, *Low* and *Bevis;* Engineering Laboratory Practice, *Smart;* The Mechanical Engineering of Power Plants, *Hutton;* Thermodynamics of the Heat Engine, *Reeve.*

MILITARY SCIENCE: Military Hygiene, *Woodhull;* Organization and Tactics, *Wagner;* Service of Security and Information, *Wagner.*

GENERAL INFORMATION.

GRADES, REPORTS, EXAMINATIONS AND ADVANCEMENT.

Records of the standing of each student are kept by the instructors in the several departments. This standing is indicated by a system of marks based upon 100 as a maximum, with decimal graduations.

Examinations are held at the end of each term, and twice each term a report is mailed to the parent or guardian of each student, showing his class standing and conduct.

The passing mark is 66 for the Freshman and Sophomore classes and 70 for the Junior and Senior classes; but if the examination grade is below 55 the student will not be passed. Special examinations will in no case be given without Faculty action; but there will be examinations for deficient students at the opening of each session. Students who wish to be examined at that time must send to S. E. Andrews, Secretary of the College, at least three days before the first day of the session, a statement of the subjects on which they wish to be examined.

GRADUATION.

A diploma of the College, with the degree corresponding to the course of study pursued, will be granted students who complete one of the regular courses and pass satisfactory examination on all of the branches therein. Each candidate for graduation is required to prepare a thesis upon a subject bearing upon his work in some scientific or practical department. The subject must be submitted to the Faculty for approval by March 1. The thesis must be satisfactory to the head of the department in which it was written.

The diploma fee is five dollars.

HONORS.

Students in the several departments having a general average of 90 or over are reported at commencement as distinguished.

MAIN BUILDING.

The main building, erected in 1876, stands on the highest point on the grounds. It is four stories high, and contains about forty rooms, used for offices, section rooms, library, book store, society halls, drawing rooms, etc.

MECHANICAL ENGINEERING BUILDING.

North of the main building is the building occupied by the Department of Mechanical Engineering. It consists of two distinct parts; first, the one containing the carpenter shop, class rooms and model

room; second, that containing the machine and blacksmith shops. The carpenter shop is fitted up with benches and tools for the accommodation of students, while above it, on the second floor, are two class rooms and a model and designing room. Back of this are the other shops mentioned, in a building of one story. Power for the machine shop is furnished by an eighteen horse power engine, which was built and set up by the graduating class of 1888. The machine shop is equipped with wood turning lathes, circular, band, and jig saws, emery wheels stand, engine lathes, planer, sharpener, drill and milling machine. The blacksmith shop has twenty-eight forges, with necessary tools, power blast, and exhaust fan.

AGRICULTURAL AND HORTICULTURAL BUILDING.

This building was planned to accomodate the agricultural and horticultural departments of the College and Experiment Station by furnishing rooms for class instruction, laboratory investigations, museum purposes, butter and cheese making, pasteurizing milk, seed store room, photographic room, and the necessary offices for the accommodation of these departments. The building is 160 feet long and 77 feet wide, two stories high, and covered with slate. It contains twenty-seven rooms, fitted with apparatus and machinery for the instruction of students in the several branches of agriculture and horticulture.

THE CHEMICAL AND VETERINARY LABORATORY.

This building, erected in 1902, is 138 feet long and 130 feet deep. It is built of brick and contains two stories and a basement. On the first floor the Veterinary Department has its office, veterinary laboratory, students' laboratory, dissecting room, operating room, museum, lecture room, and apparatus room. The Chemical Department has on the same floor two store rooms, an assay room, and a laboratory for State chemical work.

The second floor comprises the chemical museum, office and private laboratory of the professor of chemistry, office of the associate professor of chemistry, laboratory of the Experiment Station, general lecture room, balance room, and two laboratories for students.

The building is ventilated by a fan operated by an engine in the basement. The fan room is connected by pipe with all hoods in the laboratories, by which the entire volume of air in the building can be changed every two and one-half minutes. The building is wired for electric lighting, and piped for water and gas.

TEXTILE BUILDING.

This building is constructed of smoth red brick, according to the plans of an expert mill engineer, and is an excellent example of modern

cotton mill construction. The construction is of the slow-burning type generally accepted by American engineers as the most satisfactory for cotton manufacturing.

The building is two stories high, 50 feet wide and 180 feet long. The first floor is occupied by the carding and spinning and warp-preparation machinery, and the Professor's office. The second floor is occupied by the weaving and cloth-finishing machinery, and by the designing and class rooms, and the offices of the instructors in weaving.

The building is heated throughout by a Webster vacuum system of steam heat, and a complete sprinkler system for fire protection has been installed. The plumbing in the building is perfectly sanitary, and typical of the best cotton mill practice.

GATHRIGHT HALL.

This building was erected in 1876, and is named in honor of Thomas L. Gathright, the first President of the College. Twenty-five of the rooms in it are occupied by students; the others are used as section-rooms, instrument rooms and laboratories of the Department of Physics and Electrical Engineering.

PFEUFFER HALL.

This is a dormitory, erected in 1887, and contains twenty-five rooms. It is named in honor of George Pfeuffer, a former President of the Board of Directors.

AUSTIN HALL.

This is a dormitory, erected in 1888, and contains twenty-five rooms. It is named in honor of Stephen F. Austin.

ROSS HALL.

This is another and more commodious dormitory, erected in 1892, three stories high, with forty-one rooms. It is named in honor of former President L. S. Ross.

FOSTER HALL.

This building was erected in 1899, and is named in honor of former President L. L. Foster. It is a dormitory, and consists of three separate parts; the central part is four stories high and contains nineteen rooms; the two ends are three stories high and contain eighteen rooms each.

ASSEMBLY HALL.

This is a two-story brick building, erected in 1889, having a main floor and gallery. In it are held the public exercises of the College.

MESS HALL.

This building was erected in 1897. The dining hall has capacity for over five hundred students.

NATATORIUM.

The natatorium, erected in 1894, is a frame building containing a swimming pool 25x50 feet, varying in depth from three and one-half to seven feet. The water is supplied from a deep well, and is what is known as "white sulphur" water.

SEWERAGE SYSTEM.

The College is provided with an efficient system of sewers, to which are connected the various barracks, the main building, the agricultural and horticultural hall, the steam plant, the infirmary, the mess hall and the residences. The outfall of the system is three-fourths of a mile from the nearest College building and nine-tenths of a mile from the nearest recitation hall or barrack building.

FARM BUILDINGS.

The farm buildings of the College and Experiment Station are situated to the rear of the main building, and consist of a mule barn, a general farm barn, a large dairy barn with two silos, each of 200 tons capacity.

OTHER IMPROVEMENTS.

Other improvements comprise a laundry; an ice plant with a daily capacity of five tons; a system of waterworks; an electric light and cold storage plant.

GROUNDS AND GARDEN.

The garden, orchard, barn-yards and campus are included in the enclosure to the east of the railroad station. The campus consists of some twenty-five acres of lawn, shrubbery and flowers.

The orchard, vineyard, nursery and garden are located north and east of the main building, and comprise about fifty acres.

FARM.

The farm proper comprises about three hundred and fifty acres, not including pasture lands. The pastures contain in the neighborhood of two thousand acres, and furnish grazing for the College herds.

LIBRARY.

The library contains about 11,000 volumes. Of these 5000 are standard works of history, biography, agriculture, mechanics, engineering, mathematics, natural science, economics, philosophy, poetry, fiction, general literature and reference, thoroughly classified, indexed and catalogued. There are about 6000 volumes of public documents, and the various pamphlets, etc., issued by other similar institutions in the United States. The library is open six days in the week, from 8:30 a. m. till 5:30 p. m. About fifty standard technical and general periodicals, and several of the leading daily papers, are subscribed for.

LITERARY SOCIETIES.

The Austin Literary Society and the Sul Ross Literary Society meet once a week for practice in debate, literary composition and declamation.

RELIGIOUS AND MORAL CULTURE.

There is religious service in the chapel every Sunday for the corps of students and the residents of the campus. A Sunday school for Bible study, attendance at which is optional, affords additional help in the way of ethical training. Every effort is made through lecture and personal example to develop and protect good morals in the young men attending the institution.

ATHLETICS.

The usual forms of athletic sports are permitted but are not allowed to interfere with the regular College duties. No student is allowed to represent the College in any athletic contest if he is deficient in his studies. The College athletic association is a member of the Southwestern Intercollegiate Athletic Association.

BAND.

An attractive feature is a regularly organized cadet band. Under the direction of a leader employed by the College, it furnishes music for occasions of social and military importance, gives open air concerts in season, leads the battalion in marching to dinner, and plays at guard mounting and dress parade.

AFFILIATED SCHOOLS.

The Faculty, with the desire to bring the College into closer relations with the schools of the State, has provided that graduates of approved schools shall be admitted to the College on diploma or certificates *at the beginning of the session* without examination. Superintendents who desire to have their schools enrolled among the affiliated schools are invited to examine the requirements for admission, and the specimen examination questions in the appendix.

The order of affiliation is made upon the following terms: The superintendent of a school desiring affiliation should obtain from the secretary of the College a form of application to be filled out and returned. If the application should be approved by the faculty, the superintendent will be notified and the name of the school and that of the superintendent enrolled in the catalogue. The diploma of an affiliated school will admit the candidate to the freshman class. The privilege of affiliation will be withdrawn from any school whose graduates show a lack of thoroughness in their preparation for the work of the College.

Catalogues of the College will be sent regularly to superintendents of affiliated schools, and they in turn will be expected to send the president copies of their reports or catalogues.

Name.	Superintendent.	Location.
Albany Public School	Geo. D. Beason	Albany.
Allen Academy	J. H. & R. O. Allen	Bryan.
Alvarado Normal Institute	J. E. Garrison	Alvarado.
Alvin Public School	R. E. Shirley	Alvin.
Anson High Sshool	J. F. Odor	Anson.
Atlanta City School	M. G. Bates	Atlanta.
Austin Academy	J. Stanley Ford	Austin.
Barnett School, The	W. W. Barnett	Houston.
Baird Public School	H. F. Triplett	Baird.
Bastrop Public School	J. C. Edmonds	Bastrop.
Beaumont High School	W. E. Madderra	Beaumont.
Beeville High School	G. W. Page	Beeville.
Bellville High School	J. B. Hubbard	Bellville.
Belton High School	S. E. Thompson	Belton.
Big Springs High School	I. W. Evans	Big Springs.
Bonham High School	A. L. Malone	Bonham.
Bowie High School	A. H. Horn	Bowie.
Brackett High School	L. W. Lastor	Brackettville.
Brady High School	W. H. Emert	Brady.
Brandon High School	E. W. Tarrant	Brandon.
Brenham Central School	Geo. H. Carpenter	Brenham.

Name.	Superintendent.	Location.
Brownwood High School		Brownwood.
Bruce Academy	R. C. Campbell	Bastrop.
Bryan High School	T. S. Minter	Bryan.
Buda High School		Buda.
Caldwell High School	J. W. Smith	Caldwell.
Calvert Public School	I. N. Stephens	Calvert.
Cameron High School	Wm. J. Sims	Cameron.
Central Texas Institute	W. J. Lewis	Moody.
Cisco High School	R. L. Abbott	Cisco.
Clarksville High School	S. C. Sturgis	Clarksville.
Cleburne Academy		Cleburne.
Cleburne High School	V. M. Fulton	Cleburne.
Coles Classical and Military School		Dallas.
Columbus High School	C. K. Quinn	Columbus.
Comanche High School	Jno. A. Donaldson	Comanche.
Cooper High School	G. L. Marshall	Cooper.
Copperas Cove High School		Copperas Cove.
Corpus Christi High School	C. W. Crossley	Corpus Christi.
Corsicana High School	J. W. Cantwell	Corsicana.
Coryell City School	A. M. Sams	Coryell City.
Crawford High School	J. F. Ellis	Crawford.
Cuero Public School	W. S. Fleming	Cuero.
Dallas High School	J. L. Long	Dallas.
DeLeon High School	J. B. Jones	DeLeon.
Del Rio Incorporated School	W. H. Adamson	Del Rio.
Denison High School	F. B. Hughes	Denison.
Devine High School	T. J. Witt	Devine.
Dodge Industrial School	F. M. Price	Dodge.
Douglas-Schuler School	S. A. Douglas	Waco.
Dublin High School	E. I. Hall	Dublin.
Eagle Lake High School	Mrs. H. W. Carothers	Eagle Lake.
Elgin High School	J. N. Bigbee	Elgin.
Ennis High School	W. E. Edelen	Ennis.
Evant High School	H. Duncan	Evant.
Farmersville High School	G. L. Marshall	Farmersville
Flatonia High School	D. C. Lake	Flatonia.
Fort Worth High School	Alex. Hogg	Fort Worth.
Frost High School	L. V. Stockard	Frost.
Gainesville High School	E. F. Comegys	Gainesville.
Gatesville Public School	A. C. Elliott	Gatesville.
Georgetown High School	A. N. W. Smith	Georgetown.
Gladewater High School	J. H. Smith	Gladewater.
Glen Rose High School	J. M. Templeton	Glenrose.
Goldthwaite High School	Henry Sims	Goldthwaite.
Gonzales Public School	Thos. H. Lewis	Gonzales.
Grapeland Public School	A. W. Cain	Grapeland.
Graham High School	B. C. Odom	Graham.

Name.	Superintendent.	Location.
Granger High School		Granger.
Greenville High School	Geo. A. Newton	Greenville.
Hamilton High School	J. B. Lane	Hamilton.
Henderson High School	T. R. Day	Henderson.
Hico Graded School	J. N. Davis	Hico.
Hillsboro High School	W. D. Butler	Hillsboro.
Honey Grove High School	F. M. Bralley	Honey Grove.
Houston High School	P. W. Horn	Houston.
Hutto High School		Hutto.
Jacksboro High School	L. C. Collier	Jacksboro.
Jeff Davis College	J. P. Weatherby	Fort Davis.
Jeff Davis College	W. S. Burks	Pittsburg.
Karnes City High School	A. S. J. Steele	Karnes City.
Kaufman Public School	O. P. Norman	Kaufman.
Kemp Public School	H. P. Walker	Kemp.
Kenedy High School		Kenedy.
Kosse High School	W. H. Pendergraft	Kosse.
Kyle High School		Kyle.
Ladonia Public School	Chas. W. Briles	Ladonia.
LaGrange High School	W. J. Kirk	La Grange.
Lampasas High School	G. D. Scott	Lampasas.
Laredo High School	L. J. Christen	Laredo.
Laredo Seminary		Laredo.
Leander High School	Robt. L. Huff	Leander.
Ledbetter Public School	Oliver C. York	Ledbetter.
Lewis Academy		Forney.
Lewisville Academy	P. D. Kennamer	Lewisville.
Liberty Normal and Business College		Liberty.
Lindale High School		Lindale.
Llano High School	J. G. Tolland	Llano.
Louise Public School	H. L. B. Skinner	Louise.
Luling High School	R. E. L. Adams	Luling.
Marfa High School	H. B. Griffin	Marfa.
Marlin High School	C. P. Hudson	Marlin.
Marshall High School	W. H. Atterbery	Marshall.
Madison Academy	J. J. Joplin	Madisonville.
Manor Public School	W. I. Rowe	Manor.
Mexia High School	N. R. Crozier	Mexia.
Mineral Springs Institute	T. R. Howard	Garrison.
Mineola High School	B. A. Stafford	Mineola.
Mineral Wells Public School	E. O. McNew	Mineral Wells.
McGregor High School	W. F. Doughty	McGregor.
McKinney Public School	J. H. Hill	McKinney.
Mt. Pleasant High School	L. C. Libby	Mt. Pleasant.
Naples High School	D. R. Hibbetts	Naples.
Navasota High School	W. B. Bizzell	Navasota.
Nevada High School	R. E. Chapman	Nevada.

Name.	Superintendent.	Location.
New Braunfels Academy	B. Holekamp	New Braunfels.
Nocona Public School	T. A. Taggart	Nocona.
Orange High School	S. B. Foster	Orange.
Palestine High School	W. F. Wilson	Palestine.
Paris High School	J. G. Wooten	Paris.
Peacock's School for Boys	Wesley Peacock	San Antonio.
Plano High School	J. T. Johnson	Plano.
Pleasanton Public School	J. Wier	Pleasanton.
Port Arthur High School	M. H. Moffett	Port Arthur.
Port Lavaca High School	W. F. Hollamon	Port Lavaca.
Quanah High School	K. A. Berry	Quanah.
Ranger Public School	C. D. Judd	Ranger.
Richland Grammar School	J. W. Miller	Richland.
Richmond High School	W. S. Hale	Richmond.
Rising Star Public School	R. C. Campbell	Rising Star.
Rockdale Public School	John W. Clark	Rockdale.
Rock Island High School		Rock Island.
Rock Springs High School	D. C. Baylis	Rock Springs.
Rosebud Public School	W. F. Elliott	Rosebud.
Rosenberg High School		Rosenberg.
Runge High School	J. H. Naff	Runge.
San Antonio Academy	Wm. B. Sealey	San Antonio.
San Antonio High School	L. E. Wolfe	San Antonio.
San Diego High School	J. H. Hufford	San Diego.
San Saba Public School	W. F. Elliott, Jr.	San Saba.
Santa Anna High School	W. Z. Champion	Santa Anna.
Scranton High School	O. C. Britton	Scranton.
Seguin High School	Martin Rupple	Seguin.
Seymour Public School		Seymour.
Sherman High School	B. W. Glasgow	Sherman.
Shiner Public School	W. R. Muir	Shiner.
Smithville High School	J. B. Bond	Smithville.
Snyder High School	B. W. Hudgins	Snyder.
Stamford High School		Stamford.
State Institute for Blind	H. L. Piner	Austin.
Stephenville High School	D. P. Parker	Stephenville.
Sulphur Springs High School	Peyton Irving, Jr.	Sulphur Springs.
Sweetwater High School	C. C. Pollard	Sweetwater.
Taylor High School	W. M. Williams	Taylor.
Temple High School	J. E. Binkley	Temple.
Teneha High School	J. B. Crow	Teneha.
Terrell High School	S. M. N. Marrs	Terrell.
Texarkana High School	W. Owens	Texarkana.
Texas Military Academy	T. R. Leigh	Paris.
Tivy High School		Kerrville.
Troupe High School	M. M. Dupree	Troupe.
Tyler High School	J. L. Henderson	Tyler.

Name.	Superintendent.	Location.
University Military School	J. B. Dodson	Dallas.
Uvalde High School		Uvalde.
Valley Mills High School	J. D. Cox	Valley Mills.
Velasco Public School	C. D. Jessup	Velasco.
Victoria High School	Felix E. Smith	Victoria.
Waco High School	J. C. Lattimore	Waco.
Waelder Public School	J. F. Stephens	Waelder.
Waxahachie High School	W. L. Acker	Waxahachie.
Weatherford High School	T. W. Stanley	Weatherford.
West Paris High School	J. L. Clark	West Paris.
Whitesboro High School	James L. Lovelace	Whitesboro.
Wharton High School	J. E. Gibson	Wharton.
Wichita Falls High School	W. F. Jordan	Wichita Falls.
Wills Point High School	L. H. Kidd	Wills Point.
Wortham High School	M. Howard	Wortham.
Yoakum High School	T. L. Toland	Yoakum.

CATALOGUE OF STUDENTS.

EXPLANATION.

Agr., Agriculture; A. E., Architectural Engineering; C. E., Civil Engineering; E. E., Electrical Engineering; M. E., Mechanical Engineering; T. E., Textile Engineering.

POST GRADUATES.

Boyce, Charles W.	Charco
Woods, Henry Stuart	Corsicana

SENIORS.

Abney, George Raymond	C. E.	Franklin.
Allen, Fred	E. E.	Campbellton.
Armstrong, John Fisher	M. E.	San Antonio.
Arnold, Edward C.	M. E.	Graham.
Ashton, John	Agr.	Manchester, England.
Baines, Huffman	E. E.	Fredericksburg.
Brandt, Richard Ludwig	M. E.	San Diego.
Brinkmann, Herbert	M. E.	Comfort.
Brown, Carrol Gardner	E. E.	College Station.
Burney, Robert	C. E.	Austin.
Burns, Howard E.	C. E.	Houston.
Burritt, Wilbur Parkman	M. E.	San Diego.
Carlyle, Elmer	Agr.	Dallas.
Dean, James Somerville	A. E.	Belton.
Eberspacher, Fred	C. E.	Angleton.
Ehlinger, Leo	C. E.	La Grange.
Elliott, F. Glassell	T. E.	Belton.
Gleason, Benn	E. E.	Hico.
Gugenheim, Louis, Jr.	E. E.	Mason.
Hackney, James Grover	M. E.	Burleson.
Haltom, Guy Trevainon	E. E.	San Antonio.
Hofmann, Robert W.	C. E.	Mason.
Hoyo, George Adolph	Agr.	Weimar.
Kendrick, Robert Toombs	Agr.	Waco.
Kirkpatrick, Le Roy	M. E.	McKinney.
Kowalski, Bernard	C. E.	Brownsville.
Lenert, L. Gerhard	C. E.	La Grange.
Lichte, F.	T. E.	Graham.
Loving, James William	Agr.	Jacksboro.
Mayer, Max Fred	A. E.	San Antonio.
Metcalfe, J. Davis	C. E.	Pearsall.
Penner, Wm. Al	E. E.	Georgetown.
Pirie, John H.	E. E.	Parita.

Orr, Wilkin Roberts	C.	E.	Austin.
Potts, Robert Joseph	C.	E.	Fort Worth.
Ramsay, Joseph Walter	E.	E.	Houston.
Rollins, A. P.	C.	E.	Farmersville.
Schiller, Robert Edwin	C.	E.	Meeks.
Shanklin, Robert William	C.	E.	Prairie Lea.
Tabor, John Rodney	A.	E.	Houston.
Trefrey, William Henry	C.	E.	Houston.
Walker, William Thomas	T.	E.	San Saba.
Washburn, Harry Albert	C.	E.	Hallettsville.
Welboan, Joseph Samuel	Agr.		Alvin.
Windrow, Rollen Joe	C.	E.	Temple.
Wright, Alfred A.	Agr.		Alfred.
Yakey, Hal G.	Agr.		Taylor.

JUNIORS.

Bean, Benjamin	C.	E.	Kirbyville.
Bivins, Maurice	E.	E.	Longview.
Black, R. S.	C.	E.	Jewett.
Blake, H. H.	C.	E.	Markham.
Bogel, Woodworth William	E.	E.	Marfa.
Boyce, William, Jr.	C.	E.	San Luis Potosi, Mex.
Burns, Arthur Clayton	Agr.		Cuero.
Cobolini, Julius A.	M.	E.	Rockport.
Cobolini, Joseph Louis	M.	E.	Rockport.
Collins, James Alf.	E.	E.	Texarkana.
Cuney, Clifford DeBray	E.	E.	Brookshire.
Cunningham, Pinkney E.	C.	E.	Slayden.
Edsall, Arthur Butler	Agr.		Spring Creek.
Epstein, Sam George	C.	E.	Luling.
Gilbert, Warren A.	Agr.		Dallas.
Gilliam, Minyard M.	Agr.		Temple.
Granau, Herman F.	C.	E.	Bellville.
Hensel, Fritz, Jr.	Agr.		San Antonio.
Higgins, Walter Sayers	C.	E.	Bastrop.
Hill, Jake	E.	E.	Trenton.
Jouine, G. P. F.	C.	E.	Houston.
Kloss, O. H.	C.	E.	Millheim.
Kowalski, Gustav L.	A.	E.	Brownsville.
Landa, Louis M.	E.	E.	Eagle Lake.
Lempert, Lewis Henry	E.	E.	Marfa.
Lenz, Louis	C.	E.	Cuero.
Marbach, Albert	C.	E.	Bracken.
Marek, Edward L.	C.	E.	Brenham.
Maxwell, Norman Curry	C.	E.	Hico.
Milligan, Wayne	Agr.		Corsicana.
Moore, Walter Gunnell	E.	E.	Paris.
Myers, Arthur L.	E.	E.	Sherman.
Potts, Arthur Tillman	Agr.		College Station.

Puckett, Felix S	Agr.	Buda.
Rather, James B	Agr.	Timpson.
Reese, George W	C. E.	Tehuacana.
Schadt, Charles Ansell	E. E.	Galveston.
Schawe, W. Arno	Agr.	Ballinger.
Scholl, Ernest	Agr.	New Braunfels.
Schroeter, Herbert	C. E.	Double Horn.
Seward, Oscar	C. E.	Brenham.
Smith, George Arthur	E. E.	Kyle.
Thompson, Clyde Bryant	M. E.	New Braunfels.
Treadway, Shelby Jr.	C. E.	Miles.
Trenckman, Robert	M. E.	Bellville.
Underwood, Ammon	C. E.	Columbia.
Wessendorf, Joseph A	T. E.	Fort Worth.
Young, Mark H	T. E.	Bastrop.

SOPHOMORES.

Adams, Lem	C. E.	Buda.
Adams, Tom Armstrong	T. E.	Bryan.
Bailey, Broadus Ory	M. E.	Mumford.
Barr, Richard Everett	C. E.	Austin.
Bass, Amos Kendall	E. E.	Clifton.
Beall, Van Zandt	A. E.	Fort Worth.
Beesley, Thomas Jefferson	M. E.	Tracy.
Bell, John Bowyer	E. E.	Baird.
Blackaller, George Amos	Agr.	Frio Town.
Blackwood, Howard Ellis	C. E.	Tuscola.
Bogel, Gallie Newton	E. E.	Marfa.
Borah, William Creighton	C. E.	Baldwin, La.
Bower, Wieland Erastus	E. E.	Stephenville.
Boyett, Wirt Leggett	Agr.	College Station.
Brooks, Thomas Waldo	Agr.	Dallas.
Brundrett, George Tounsend	E. E.	Dallas.
Burmeister, Charles A	Agr.	Tilden.
Casey, Paul D	T. E.	Tuscola.
Cason, Ernest A	T. E.	Blanket.
Cavitt, Fred Lee	E. E.	Bryan.
Cornell, Albert L	C. E.	Cooper.
Cortes, August Bering	C. E.	Houston.
Crockett, James B	C. E.	Prosper.
Cross, Claud	M. E.	Greenville.
Dahlman, Ludwig W	Agr.	Cuero.
Dale, Ivan	C. E.	Chillicothe.
Dale, Jesse	M. E.	Chillicothe.
De Maret, Seth Edgar	E. E.	Bryan.
Dorsett, Thomas Goodloe	E. E.	Midlothian.
Dunks, Prince Albert	M. E.	Crosby.
Ellis, Oscar Lee	E. E.	Abilene.
Evans, Claude Maxy	Agr.	Talpa.

Faught, Alva Hodge	C. E.	Groesbeck.
Faust, Robert William	Agr.	Comfort.
Fisher, James Arthur	Agr.	Rosebud.
Fleming, Charles Henry	T. E.	Cisco.
Fontaine, Frank C.	Agr.	Galveston.
Foy, Henry Frederick	E. E.	Baird.
Gardien, Kent E.	E. E.	Houston.
Giddings, Dewitt Clint	Agr.	Brenham.
Goldwire, Henry C.	C. E.	Christoval.
Gresham, Wilburn Owen	E. E.	Smithville.
Harris, Bion Lawrence	E. E.	Ballinger.
Heller, Will	Agr.	Buda.
Herblin, Will Leonard	E. E.	Austin.
Hodges, Robert Henry	Agr.	Ranger.
Homeyer, Charles W., Jr.	C. E.	Burton.
Huff, Leslie Newton	Agr.	Luling.
Jobson, Hicks H.	Agr.	Mesquite.
Jones, Clement Edgar	Agr.	Harvey.
Jones, Duke	Agr.	Harlingen.
Jones, Luther R.	C. E.	Walnut Springs.
Kelley, Victor M.	Agr.	Durant, I. T.
Lauderdale, John Ross	Agr.	Naruna.
Lawrence, C. V.	C. E.	Cedar Bayou.
Lee, Knox	E. E.	Comanche.
Lindner, Michael	M. E.	Comfort.
Lipstate, Philip Harry	T. E.	Tyler.
Liverman, Oscar Raymond	Agr.	Jefferson.
Maedgen, C. Alvin	Agr.	Troy.
Maxwell, Oliver Terrell	E. E.	Cisco.
McCowan, James Wilson	Agr.	Whitney.
McElroy, Thomas Ephraim	Agr.	San Marcos.
McGinnis, Nestor Massey	Agr.	Terrell.
McKie, F. B.	Agr.	Corsicana.
McLeod, John Hayne	Agr.	Terrell.
McMordie, Robert K.	M. E.	Mineral Wells.
Meerscheidt, Leo P.	C. E.	San Antonio.
Miller, Eugene Adam	Agr.	Postoak Point.
Moore, George Fleming	C. E.	Fort Worth.
Munson, Adriance	E. E.	Angleton.
Neale, Robert Burke	Agr.	Leonard.
Netherwood, Douglas Blakeshaw	M. E.	Lohn.
North, William Glass	Agr.	Concrete.
Patterson, Andrew Lawrie	Agr.	Carrizo Springs.
Pendleton, Royal	Agr.	Stratford.
Polansky, Theodore	C. E.	Smithville.
Reichinstein, Charles Augustus	Agr.	Dallas.
Rhode, Frank Edgar	M. E.	Karnes City.
Robinson, Esker Roscoe	Agr.	Trenton.
Roff, Curtis Scott	M. E.	Brenham.
Sampson, William Emmett	C. E.	Saint Jo.
Schaefer, Robert E.	M. E.	Schulenburg.

Schmidt, Hubert	Agr.	Comfort.
Slaughter, Edward George	C. E.	Dallas.
Smith, Adoniram Judson	Agr.	Branchville.
Spivey, Maddin	C. E.	Burke.
Standifer, Richard Hunter	C. E.	Greenville.
Stanger, Richard Hanson	E. E.	Brazoria.
Storey, Jeff Thompson	E. E.	Lockhart.
Telfair, Will Hull	E. E.	Ennis.
Wallace, Edgar Mortimer	Agr.	Fort Worth.
Warden, John Ashley	C. E.	McKinney.
Washburn, Walter W.	C. E.	Houston.
White, Walter William	Agr.	Cuero.
Whitney, Lloyd Thomas	M. E.	Texas City.
Whittett, Arthur Butler	M. E.	Anchorage.
Wilson, Charles P.	C. E.	Groesbeck.
Woodman, Cony Uncas	T. E.	Fort Worth.
Wray, Jay	M. E.	Centre Point.
Utay, Joseph	E. E.	Dallas.
Warn, Fred Reginald	E. E.	Cuero.

FRESHMEN.

Adams, R. E.	E. E.	Comanche.
Aldwell, Roy Edward	E. E.	Sonora.
Allen, Henry Boyle	E. E.	Hubbard.
Anderson, James Settle	C. E.	Potosi.
Barnes, John F.	C. E.	Lampasas.
Bartlett, Herman	E. E.	Houston.
Beauregard, Richard Fontant	C. E.	San Antonio.
Bittle, George Frederick	C. E.	College Station.
Black, Walter Alvin	E. E.	Mount Pleasant.
Blake, R. W.	Agr.	Dallas.
Boatright, Stuart Law	C. E.	Bryan.
Brannin, Carl Philip	A. E.	Cisco.
Buck, Frank Hill	E. E.	Austin.
Bunnell, Frank M.	C. E.	Taylor.
Burns, Robert Hanley	Agr.	Temple.
Byars, Conrad Guy	C. E.	Columbus.
Caldwell, Joe Jefferson	Agr.	Brownwood.
Caldwell, John Elisha	Agr.	Brownwood.
Caldwell, William Friend	M. E.	Cuero.
Cely, Homer Mills	E. E.	Brushy Creek.
Chase, Nathan Barnes	A. E.	Dallas.
Clements, Essley Duke	M. E.	Goldthwaite.
Clymer, Charles Golden	Agr.	Denison.
Cole, Albert Thorbon	E. E.	Beaumont.
Collins, Thomas Milton	E. E.	San Angelo.
Connor, Albert Rhodes	C. E.	Madisonville.
Creighton, Claud L.	E. E.	Salesville.
Crawford, Charles Moore	T. E.	Seagoville.
Crum, Jesse Barkley	C. E.	Bryan.

Dabney, John	M. E.	Bonham.
Dalton, Melvin	Agr.	Bronte.
Dansby, Durant Paul	Agr.	Bryan.
Daugherty, Jack Samon	C. E.	Houston.
Davis, Leroy P	Agr.	Howe.
Day, DeMotte, Jr	C. E.	Luling.
Decker, Stiles Morrow	E. E.	Quanah.
Delameter, Benjamin Franklin	C. E.	Caldwell.
Dibrell, Zack Hinckley	E. E.	Coleman.
Donnelly, Verner Joseph	E. E.	Beaumont.
Drinkard, James Levi	Agr.	Mart.
DuBose, Edwin Anthony, Jr	T. E.	Waxahachie.
Eason, David Irvin	E. E.	Tyler.
Easterwood, Jesse Lawrence	Agr.	Wills Point.
English, Malcolm Graeme	C. E.	Lott.
Estes, Jack Hornsby	M. E.	McKinney.
Flowers, Morgan, Jr	C. E.	Eagle Lake.
Foscue, Garland Ben, Jr	M. E.	Waco.
Foster, Phil Brown	E. E.	Del Rio.
Francis, Walter Clyde	E. E.	Waco.
Furneaux, William Hamlyn	Agr.	Dallas.
Gaillard, John Gourdin	E. E.	El Paso.
Giesecke, Albert Carl	C. E.	Marble Falls.
Giesecke, Rudolf Richard	M. E.	Marble Falls.
Gilbert, Woodie Roy	Agr.	Austin.
Gillean, Bruce Edgar	Agr.	Frost.
Gillespie, Robert Williamson	M. E.	Alleyton.
Gooch, Frank Branch	Agr.	Temple.
Gracy, John Adam	C. E.	Austin.
Grady, Mordant Lawrence	C. E.	Indian Creek.
Greer, Fred Connerly	E. E.	Yoakum.
Groos, Rudolf	E. E.	San Antonio.
Guyler, Samuel Howell	M. E.	Wallis Station.
Hammond, Walter Raymond	Agr.	Kosse.
Harris, David Bullock	Agr.	Dallas.
Harris, Jason Glen	E. E.	Hutto.
Harris, Oliver	C. E.	Whitney.
Harrison, Ed Sandmeyer	C. E.	Columbus.
Harvin, Henry Mitchell	C. E.	Houston.
Heldenfels, Frederick William	A. E.	Beeville.
Henermann, Edward Joseph	C. E.	Yoakum.
Henry, Melton Freeman	Agr.	Tyler.
Hodges, Henry Milton	C. E.	Myers.
Holcomb, James Cleave	Agr.	Cisco.
Huettig, Julius Emil	M. E.	Brenham.
Hutson, Miles Brewton	E. E.	College Station.
Jackson, Robert Roy	Agr.	Kemp.
Jahn, Rudolph Stillwell	C. E.	New Braunfels.
Jennings, James Walter	M. E.	Kosse.
John, Joe R	C. E.	Calthorp.
Kennedy, Wilbur Vincent	M. E.	Houston.

Kerr, Donald Faris	C.	E.	Grand Saline.
Kibbe, Preston Floyd	Agr.		Port Lavaca.
King, Virgil Wooten	Agr.		Elgin.
Knolle, Jesse James	Agr.		Industry.
Kohfeldt, Franz Harrison	A.	E.	Denison.
Krauskopf, Lawrence Henry	C.	E.	Fredericksburg.
Krenek, Rudolph Francis	M.	E.	Fayetteville.
Lee, Henry Frank	M.	E.	Dawson.
Leggett, Charles William	M.	E.	El Campo.
Lenoir, Thomas English	C.	E.	Blossom.
Lineburg, Charles C	M.	E.	Grand Saline.
Looney, Lawrence Pender	Agr.		Greenville.
Maloney, John Charles	M.	E.	Haslet.
Martin, Charles A	M.	E.	Beaumont.
Martin, Joseph Victor	E.	E.	Austin.
Martin, Rudolph Edwin	E.	E.	Hedwigs Hill.
Maurin, Firmin	M.	E.	Maurin.
Mayfield, Charles Rutledge	C.	E.	Karnes City.
McDaniel, Adolphus Alfred	Agr.		Mineola.
McHenry, Thomas Frost	C.	E.	Lampasas.
McMillan, Samuel Augustus	Agr.		Anchor.
Miller, Arthur Lee	Agr.		Weimar.
Miller, Robert Frederick	Agr.		Postoak Point.
Minter, Claude Joe	Agr.		Guthrie.
Mitchell, Allin Fowler	C.	E.	Wooster.
Moore, Charles Edgar	E.	E.	Mineral Wells.
Moore, Searcy	E.	E.	Smithville.
Morgan, Richard Henry	C.	E.	Dublin.
Munson, Henry William, Jr	E.	E.	Angleton.
Murray, James Lee	E.	E.	Angleton.
Neibert, James Shirley	Agr.		College Station.
Nevill, Guy F	E.	E.	San Antonio.
Newton, Clyde Clinton	C.	E.	Lampasas.
Noble, Herman Y	T.	E.	Timpson.
Noguess, William James	Agr.		Fort McKavett.
Norwood, Eugene Phillips	Agr.		Del Valle.
Ohlendorf, Arthur	C.	E.	Lockhart.
Paxton, James Frank	M.	E.	Cherokee.
Peaslee, Oliver Morgan	E.	E.	Temple.
Phillips, Joseph Maxville	C.	E.	Brandon.
Phillips, Lyle Thomas	E.	E.	Eagle Lake.
Ragland, John Broad	C.	E.	Paris.
Reagin, Orville Waters	Agr.		Forney.
Reddell, Thomas Moore	Agr.		Aledo.
Ridenour, Claude Albern	C.	E.	Dexter.
Rife, Arthur	C.	E.	Mendoza.
Riley, Ashby Autrey	C.	E.	Houston.
Robertson, Robert Lamar	C.	E.	Waelder.
Robinson, George Gee	T.	E.	Missouri City.
Rosborough, Eli T. Jr.	Agr.		Marshall.

Rosborough, Tom Craig	Agr.	Marshall.
Roseborough, William Daniel	C. E.	Bryan.
Rosenfeld, William	C. E.	Jefferson.
Rotzler, John Fritz	M. E.	San Antonio.
Rudolph, Roy Francis	C. E.	Stratford.
Samuel, Egbert Sterling	E. E.	Greenville.
Sassman, William Eddrith	C. E.	Creedmore.
Schroeter, Alex	C. E.	Double Horn.
Scott, Paul Hinkle	M. E.	Athens.
Sewell, Jay Lamont	Agr.	Blooming Grove.
Shearer, David Macdougal	C. E.	Lufkin.
Siegel, Roy Charles	E. E.	Houston.
Smith, Carroll Griggs	E. E.	Timpson.
Smith, David Purifoy	Agr.	Maysfield.
Speer, William Fred	E. E.	Baird.
Stidham, Thomas Benjamin	E. E.	Jones Prairie.
Sorenson, Jerome Wallace	E. E.	Rockport.
Taylor, Charles Ray	Agr.	Marshall.
Taylor, Philip Bates	M. E.	Dallas.
Van Amburgh, Tom Albert	C. E.	Greenville.
Voelcker, Herbert Rudolf	E. E.	New Braunfels.
Wallace, John Edward Benjamin	M. E.	Kyle.
Ward, Henry Levy	E. E.	Waco.
Warnken, Edwin Raymond	C. E.	La Grange.
Washburn, Casper August	C. E.	Hallettsville.
Weinert, Max	E. E.	Seguin.
Whittet, Harold Edward	M. E.	Anchorage.
White, John Charles	Agr.	Brandon.
Wier, William Benson	E. E.	Fort Smith, Ark.
Williams, Paul William	A. E.	Fort Worth.
Wilson, John Walker	Agr.	Dallas.
Wise, Whitby Foster	C. E.	Luling.
Wyche, Tucker Shackelford	E. E.	Hereford.
Young, Gail Sellers	C. E.	Galveston.

ELECTIVES.

Beard, Lanie Arnold	Willis.
Brown, Vorhies P.	San Antonio.
Bruce, Oscar Clarence	Wills Point.
Buchanan, Tom Stone	Brenham.
Burkhalter, Henry P.	Mount Calm.
Byrd, Arthur R.	Hico.
Chambers, John M.	Furgeson, Mo.
Collier, George Pierce	Uvalde.
Culver, Dan	Lampasas.
Currie, Albert Whitaker	Cleburne.
Cutter, John Orin	Palestine.
Dobbins, Ray H.	Jefferson.
Ehlers, Paul	Smithville.
Garth, Sebree	Fort Worth.

Geiger, Lenoir C.	El Campo.
Giesecke, Daniel Bell	Angleton
Gripon, Harrell Arnot	Beaumont
Holloway, Thomas Edmunds	Dallas.
Johnston, John Ray	Ashtabula, Ohio.
Kleinsmith, Enoch Arthur	Luling.
Lilly, Ridgely Casey	Jacksboro.
Mair, D. Stanley	Houston.
McDonald, James L.	Orange.
Mullen, Percy Keck	Laredo.
Simmons, Milton M.	Dallas.
Skaggs, George E.	Georgetown.
Walker, John Caffery	Galveston.
Webb, Robert Samuel, Jr.	Bryan.
Winston, Robert	San Marcos.
Wortham, William Becton	Austin.

SPECIALS.

Beverly, Thomas Hughston	McKinney.
Harrison, George Lytle	Columbus.
Lomanitz, Sebastian	Florianopolis, Brazil.
Noguess, Jack	Orange.
Van Zandt, Edmund	Fort Worth.
Williams, Thomas Jackson	Wytheville, Va.

SHORT COURSE IN AGRICULTURE.

Bell, Andrew Kern	Beeville.
Cheney, Byron	Corsicana.
Dedek, Frank	Seberta.
Florence, Emet	Mesquite.
Hinchliffe, W. W.	Mexia.
Leigh, William Brewster	Centre Point.
Martin, Will H.	Eliasville.
McNew, John B.	Dallas.
Penn, Marcus R.	Penn.
Spence, Robert	San Diego.
Wilson, Ben Felix	Ben Wheeler.
Wolcott, Frank F.	Midland.

SUMMARY.

Post Graduates	2
Seniors	47
Juniors	48
Sophomores	102
Freshmen	164
Electives	30
Specials	6
Short Course in Agriculture	12
Total	411

BATTALION ORGANIZATION FOR 1905-06.

H. H. Sargent, Captain 2d U. S. Cavalry, Commandant.

FIELD AND STAFF.....

Arnold, E. C., Major.
Hackney, J. G., 1st Lieutenant and Adjutant.
Rollins, A. P., 1st Lieutenant and Quartermaster.
Black, R. S., Sergeant Major.
Scholl, E., Quartermaster Sergeant.
Schroeter, H., Color Sergeant.
Schawe, W. A., Trophy Sergeant.
Walker, J. C., Chief Trumpeter.

Co. A.	*Co. B.*	*Co. C.*	*Co. D.*
CAPTAINS.			
Welboan, J. S.	Dean, J. S.	Burritt, W. P.	Gleason, B.
FIRST LIEUTENANTS.			
Lenert, L. G.	Pirie, J. H.	Windrow, R. J.	Wright, A. A.
SECOND LIEUTENANTS.			
Lichte, F. Kendrick, R. T.	Ramsay, J. W. Elliott, F. G. Walker, W. T.	Hofmann, R. W. Hoyo, G. A.	Loving, J. W. Baines, H.
FIRST SERGEANTS.			
Gilbert, W. A.	Moore, W. G.	Potts, A. T.	Smith, G. A.
SERGEANTS.			
Cunningham, P. E. Schadt, C. A. Trenckmann, R. Puckett, F. S.	Thompson, C. B. Jouine, G. P. F. Skaggs, G. E. Hill, J.	Hensel, F. Cuny, C. de B. Boyce, W. Granau, H. F.	Bean, B. Wessendorf, J. A. Garth, S. Seward, O.
CORPORALS			
Homeyer, C. W. Holloway, T. E. Cornell, A. L. Blackaller, G. A. Crockett, J. B. Whittet, A. B. Lauderdale, J. R. Washburn, W. W.	Pendleton, R. Fisher, J. A. Liverman, O. R. Bass, A. K. Harrison, G. L. Maxwell, G. L. McCowan, J. W. Barr, R. E.	Miller, E. A. Stanger, R. N. Harris, B. L. Reichenstein, C. A. Schaefer, R. E. Bruce, O. C. Utay, J. Dahlman, S. W.	Adams, T. A. Netherwood, D. B. Jones, L. R. Huff, L. N. Brooks, T. W. Blackwood, H. E. Lawrence, C. V. Dale, J.

Band.

FIRST LIEUTENANT.

Schiller, R. E.

SECOND LIEUTENANT.

Mayer, M. F.

DRUM MAJOR.

Trefry, W. H.

SERGEANTS.

Rather, J. B.

Marek, E. L.

CORPORALS.

Foy, H. F.

DEGREES AND HONORS.

Conferred at Commencement, June, 1905.

DEGREE OF CIVIL ENGINEER.

Cochran, J.

DEGREE OF B. S. (IN AGRICULTURE).

Ballard L. L., Becker A., Born T. C., Street G. C. Jr., Boyce C. W., Church M. S., Cruse J. C., Glass W. V.. Hanna H. E., Holzman W. R., Kroulik H. J., Minear S. A. McLennan L., Price W. A., Sammons T. B., Schroeder E. F., Stubbs V. H., Wheeler A. C., Wyse J. T.

DEGREE OF B. S. (IN CIVIL ENGINEERING).

Abney C. C., Benjamin J. W., Durst B. L., Ehlers V. M., Forsgard O. L., Garza C. M., Leary E. M., Marburger B., Pendleton D. E., Webb T. C., Wilson A. F.

DEGREE OF B. S. (IN ELECTRICAL ENGINEERING).

Hill J. E., Woods H. S.

DEGREE OF B. S. (IN MECHANICAL ENGINEERING).

Hauck C. F., Lindeman J. E., McFarland A., Sternenberg P., Washburn J. E., Welhausen P. H., Woodall H.

HONOR GRADUATES—SESSION 1904-05.

Woods, Marburger, Pendleton.

DISTINGUISHED STUDENTS BY CLASSES.

Senior Class—Marburger, Woods, Church.
Junior Class—Ramsay, Lenert, Gleason.
Sophomore Class—Cerna, Bean, Cunningham.
Freshman Class—Beesley, Miller, E. A., Washburn, W. W.

DISTINGUISHED STUDENTS BY DEPARTMENTS.

Senior Class.

Botany—Boyce, C. W.
Chemistry—Marburger, Woods.
Drawing—
C. E. Course—Pendleton, Ehlers.
M. E. Course—Lindeman, Hauck.
Farm Husbandry—Boyce, C. W.
History—Marburger, Burns, Welhausen.
Languages—Ehlers, Pendleton.

Mathematics—Marburger, Woods, Pendleton.
Mechanical Engineering—Welhausen, Washburn, Lindeman.
Military Science—Marburger, Church, Pendleton.
Physics and Electrical Engineering—Woods.
Veterinary Science—Holzman, Ballard.

Junior Class.

Botany—Ashton, Potts, A. T.
Chemistry—
    Agricultural Course: Hoyo, Carlyle.
    Engineering Course: Lenert, Armstrong.
Civil Engineering—
    C. E. Course: Lenert, Dean.
    M. E. Course: Brinkman, Arnold.
Drawing—Dean, Trefry, Windrow.
Farm Husbandry—Hoyo.
Languages—
    German: Hofmann, Lenert.
    French: Gleason, Metcalfe.
    Spanish: Boyce, Ramsay.
Mathematics—Lenert, Shanklin, Allen.
Mechanical Engineering—Brinkmann, Burritt.
Military Science—Burritt, Ramsay, Rollins.
Physics and Electrical Engineering—Gleason, Brown, Ramsay.
Plant Husbandry—Welboan, Hoyo.
Textile Engineering—Dixon, Lichte.
Veterinary Science—Loving, Welboan.

Sophomore Class.

Civil Engineering—Bean, Cerna, Thompson.
Drawing—Cerna, Bean, Currie.
English—Hensel, Cerna, Bean.
Farm Husbandry—Surmann.
Languages—
    French: Cerna.
    German: Hensel.
    Spanish: Mullen, Jouine.
Mathematics—Cerna, Wessendorf, Smith, G. A.
Mechanical Engineering—
    M. E. Course: Thompson, Harrigan.
    E. E. Course: Moore, W. G., Hill, J.
Physics and Electrical Engineering—Cerna, Moore, W. G.
Plant Husbandry—Tuttle, Potts, A. T., Hensel.
Textile Engineering—Wessendorf.

Freshman Class.

Drawing—
    Agricultural Course: Walker, J. C., Miller, E. A., McSwain.
    Engineering Course: Jones, L. R., Foy, Washburn, W. W.
English—Foy, Adams, T. A., Walker, J. C.
History—Burmeister, Huff, McElroy.

Mathematics—Parish, W. A., Dale, I., Cardenas.
Mechanical Engineering—Beesley, Dale, J., Wilson, C. P.
Plant Husbandry—Pendleton, R., Huff, McElroy.

GRADUATING CLASS.

(With Subjects of Theses.)

AGRICULTURAL COURSE.

L. L. Ballard, Luling, "A Study of the Nerve and Blood Supply to the Fore and Hind Legs of the Horse."

A. Becker, Brenham, "Inoculation of Burr Clover with Alfalfa Bacteria."

T. C. Born, Corpus Christi; G. C. Street, Jr., Houston, "Cattle Ranching Industry in Texas."

C. W. Boyce, Charco, "Infection of Alfalfa with the Root Tubercle Bacterium of Burr Clover."

M. S. Church, McKinney, "Pork Production in Texas."

J. T. Cruse, Woodville, "The Determination of the Constituents of Commercial Baking Powder."

W. V. Glass, Franklin, "The Blossom End Root of the Tomato and its Preventatives."

H. E. Hanna, Denison; E. F. Schroeder, Industry, "The Feeding Value of Black Strap Molasses."

W. R. Holzman, Industry, "The Study of the Nerve Supply to the Eye."

H. J. Kroulik, Industry, "A Determination of the Maximum and Minimum Temperatures Sustained by Cotton Seed."

S. A. Minear, Gonzales, "Test of the Different Methods of Sprouting Peach Pits, Budding and Grafting."

L. McLennan, Dodd City, "The Castor Oil Industry."

W. A. Price, Reagan, "The Germination and Early Growth of Large and Small Cotton Seed.

T. B. Sammons, Alvin, "Rice Culture in Texas."

V. H. Stubbs, Wortham, "Analysis of Some Alfalfa Seed Sold on the Texas Market."

A. C. Wheeler, Anchorage, "Irrigation of the Six Leading Cereals."

J. T. Wyse, Dallas, "The Cultivation of Indian Corn."

CIVIL ENGINEERING COURSE.

J. Cochran, B. S., Houston (For the Degree of Civil Engineer)—Design for a 256-Foot Swing Bridge.

C. C. Abney, Lampasas, "Plans and Estimates for an Electric Railway to Connect College and Bryan."

J. W. Benjamin, Cuero, "Design for an 80-Foot Span Fink Roof Truss."

B. L. Durst, Leona, "Design for a Railway Bridge, 161 Feet Span."

V. M. Ehlers, LaGrange, "Design for a Railway Bridge, 157 Feet 6 Inches Span."

O. L. Forsgard, Houston; A. F. Wilson, Houston, "Design of a Natatorium and Gymnasium for the Agricultural and Mechanical College."

C. M. Garza, Brownsville, "Design of a Water Works System for Brownsville."

E. M. Leary, Alvin, "Design for a Railway Bridge, 159 Feet 3 Inches Span."

B. Marburger, Cistern, "Plans and Estimates for an Impounding Reservoir at College."

D. E. Pendleton, Stratford, "Design for a Railroad Bridge, 162 Feet 9 Inches Span."

T. C. Webb, Mart, "Plans and Estimates of a Building and Accessories for an Athletic Field at College."

ELECTRICAL ENGINEERING COURSE.

J. E. Hill, Jr., Manor, "Plans, Specifications and Estimates of an Electric Light Plant for Manor, Texas."

H. S. Woods, Corsicana, "Testing and Design of Rheostats of Large Current Capacity."

MECHANICAL ENGINEERING COURSE.

C. F. Hauck, Denison, "Test of a Straight-Line Engine."

J. E. Lindeman, Austin; P. Sternenberg, Industry, "A Comparative Test of a Steam Engine Working Condensing and Non-Condensing."

A. McFarland, Rockwood; P. H. Welhausen, Shiner, "Plans and Specifications for a Steam Plant, Capacity 1000-Horse Power."

J. E. Washburn, Houston; H. Woodall, San Marcos, "The Installation and Test of a Tandem Compound Engine at the Agricultural and Mechanical College."

ALUMNI.

Alumni Association.

(Organized 1886.)

ORGANIZATION FOR 1905-'06.

L. D. Amsler, '89, President.....Hempstead.
H. P. Jordan, '95, Vice-President.....Waco.
C. A. Thanheiser, '01, Vice-President.....Houston.
A. M. Todd, '94, Vice-President.....Memphis, Tenn.
W. Wipprecht, '84, Vice-President.....Bryan.
F. E. Giesecke, '86.....College Station.
E. J. Kyle, '99, Secretary and Treasurer.....College Station.

EXECUTIVE COMMITTEE.

L. D. Amsler, '89. J. W. Carson, '86. E. J. Kyle, '99.

On the following pages are given the names of all graduates of the College, with the courses of study pursued and the degrees obtained; their occupations and residences are also given as far as known. The alumni are requested to aid the Secretary of the association in making the roll as accurate as possible.

From the opening of the College in 1876 to its reorganization in 1880, the studies were elective, and led to appropriate degrees. Degrees received in this interval are noted in the list of names.

From 1881 to 1887, there were two prescribed courses, the Agricultural and the Mechanical, but no degress were given.

From 1888 to 1895 there were four prescribed courses, leading to the degrees of Bachelor of Scientific Agriculture (B. S. A.); Bachelor of Civil Engineering (B. C. E.); Bachelor of Scientific Horticulture (B. S. H.); Bachelor of Mechanical Engineering (B. M. E.).

From 1895 to 1901 the four prescribed courses remained the same, but the degree in each was Bachelor of Science (B. S.), the particular course being specified in the diploma.

In 1901 the Horticultural course was merged with the Agricultural, and in 1903 the course in electrical engineering was offered, making four, three regular courses leading to the degree of Bachelor of Science (B. S.) in Agriculture, in Civil Engineering, in Electrical Engineering and in Mechanical Engineering, respectively.

The courses of study are indicated by the use of Roman numerals, as follows:

I. Agriculture.
II. Horticulture.
III. Mechanical or Mechanical Engineering.
IV. Civil Engineering.
V. Electrical Engineering.

Names of deceased alumni are marked with star.

ABBOTT, E. G., 1894, IV, First Lieutenant, United States Army, Fort Flagler, Washington.
ABBOTT, H. T., 1898, II, Horticulturist, Weatherford.
ABNEY, CARLTON C., 1905, IV, Lampasas.
ABRAHAMS, J. E., 1900, III, Machinist, International & Great Northern Railway Shops, Palestine.
ABRAHAMS, M. L., 1903, III, Student Cornell University, Ithaca, N. Y.
ACKER, L., 1902, IV, with the G., C. & S. F. Railway, Temple.
ADAMS, A. S., 1895, IV, Claim Agent, I. & G. N. Ry., Fort Worth.
ADAMS, F. L., 1892, I, Physician, Stafford.
*ADRIANCE, D., 1886, I, M. S., 1890, Bryan.
AGUAYO, N. A., 1904, III.
AHRENBECK, W. T., 1891, III, Minister, Cuero.
AKERS, M. E., 1902, IV, Rice Farmer, Amelia.
ALEXANDER, D. E., 1880.
ALEXANDER, R. L., 1902, IV, U. S. Surveyman, Mound, Ark.
ALLEN, L. C., 1881, III, President, Allen-Curry Lumber Co., Marlin.
ALLEN, W. H., 1888, I, Druggist, Marlin.
ALTGELT, E. J., 1892, IV, Merchant, Alpine.
ALTGELT, E. S., 1904, IV, Student, University of Texas, 2006 Wichita St., Austin.
AMSLER, L. D., 1889, III, Cashier, Farmers' National Bank, Hempstead.
AMTHOR, A. W., 1895, IV, Civil Engineer for Brownsville Land and Irrigation Co., Brownsville.
ANDERSON, W. D., 1890, I, Manager Ice Works, Waxahachie.
ANDREWS, V., 1884, III, Physician, Valley View.
ARMSTRONG, M. F., 1882, III, Farmer and Merchant, Chappell Hill.
ASTIN, E. H., 1899, III, Planter, Mumford.
BACKUS, U. J., 1890, III, Chief Clerk, Eagle Pass Coal and Coke Works, Eagle Pass.
BAILEY, C. C., 1892, IV, Cashier, First National Bank, Bartlett.
BAKER, J. J., 1879, Merchant, Homer, La.
BAKER, SEARCY, 1882, III, Superintendent, Texas Penitentiaries, Huntsville.
BALLARD, LUKE L., 1905, I, Student, Ohio State University, Columbus, Ohio.
BANKS, A. L., 1879, B. S., 1892, M. S., 1895, Prof. of Math., College of Industrial Arts, Denton.
BARCLAY, R. L., 1898, III, Merchant, Crenshaw.
BARHAM, G. S., 1902, III, Medical Student, University of Texas, Galveston.
BARHAM, R. E., 1903, IV, Nacogdoches.
BARNES, R. M., 1898, III, General Merchant, Abilene.
BARNES, S. E., 1899, I, Instructor in Dairying, University of Tennessee, Knoxville, Tenn.
BATTE, T. R., 1902, IV, with W. P. Bullock, Hyd. Eng., Woodward, Okla.
BAUER, F., 1904, III, Burton.
BAUM, J. A., 1903, IV, Civil Engineer, Pensylvania R. R. Co., Cleveland, O.
BECKER, ADOLPH, 1905, I, Hardware Salesman, Brenham.
BEEMAN, T. R., 1903, IV, Arizona.
BEESLEY, W. S., 1892, IV, Salesman, Lancaster.
BEILHARZ, W. E., 1903, III, Draftsman, S. P. Railway, Stockdale.
BENJAMIN, J. W., 1905, IV, Draftsman, S. P. Railway, Victoria.
BERNAY, C. L., 1904, IV, Engineering Corps, G. C. & S. F. R. R., Temple.
BEYER, F. C., 1892, III, Ginner, Marion.
*BIBERSTEIN, F. R., 1882, III.

BIERING, S. R., 1900, IV, Clerk, Gulf, Colorado & Santa Fe Railway, 1615 Winnie Ave., Galveston.
BITTLE, P. B., 1896, I, Principal, High School, Henderson.
BITTLE, T. C., Jr., 1900, IV, Mining Engineer, care Mexico L. & P. Co., Necaxa, Mexico.
BITTLE, W. A., 1894, I, Teacher, Washington, La.
BLACK, M., Minister, Sterling City.
BLAKE, T. W., 1904, I, Huntsville.
*BLAKEMORE, T. E., 1880.
BLAND, L. F., 1899, I, Medical Student, Memphis, Tenn.
BLEDSOE, F. F., 1880, Teacher, Mabank.
BLOOR, A. W., 1895, I, Attorney, Austin.
BLOUNT, S. L., 1896, I, Meat Inspector, United States Government, Fort Worth.
BOCOCK, J. H., 1894, I, Traveling Salesman, Salem, Va.
BOETTCHER, R. B., 1900, III, Div. Eng., Opelousas, Gulf & Northeastern Ry., Opelousas, La.
BORN, THOMAS E., 1905, I, Ranchman, Corpus Christi.
BOYCE, CHARLES W., 1905, I, Assistant Agriculturist, College Station.
BOYKIN, R. E., 1892, III, Teacher.
*BRAUN, P., 1888, San Antonio.
*BRITTINGHAM, W. F., Jr., 1890, IV.
BRETSCHNEIDER, W., 1898, IV, Assistant Engineer, Houston East & West Texas Railway, Houston.
BREWER, H. A., 1899, III, Farmer, Lytton Springs.
BROGDON, S. T., 1898, III, Architectural Draughtsman, Beaumont.
BROWN, R. M., 1901, IV, in charge of track, Guayaquil & Quito Ry. Co., Box 37, Guayaquil, Ecuador, S. A.
BROWN, T. H., 1879, Sugar Planter, Houston.
BROWN, W. H., 1880, IV, Planter, Navasota.
BRUCE, E. L., 1894, IV, Lawyer, Orange.
BRYAN, B. F., 1897, I.
BRYAN, W. L., 1900, III, Chief Engineer, Flour Mills, Celina.
BUCKMAN, C. A., 1889, IV, Clerk, Denison.
BUFORD, F. L., 1892, IV, Assistant Engineer, Gulf, Colorado & Santa Fe Railway, Silsbee.
BUHLER, C. M., 1897, III, Chief Clerk, Disbursements, S. P. Co., 7532 Hampson St., New Orleans, La.
BUHLER, C. W., 1892, IV, Chief of Car Department, San Antonio & Aransas Pass Railway, San Antonio.
BUHLER, W. A., 1900, III, Draftsman, S. P. R. R. Co., 908 Rusk Ave., Houston.
BULLARD, T. O., 1899, III, International & Great Northern Shops, Mart.
BURCK, L. B., 1899, IV, Importer Tea, Coffee and Spices, Galveston.
BURFORD, J. M., 1882, III, Physician and Surgeon, Independence.
BURGHARD, C. L., 1886, III, Cashier, Bank of Goliad.
BURGOON, C. E., 1895, III, M. E., 1899, Student, Cornell University, 523 Naurrow St., Ithaca, N. Y.
BURLESON, R. W., 1895, III, Fire Insurance Agent, San Saba.
BURNEY, J. W., 1896, III, Stockman, Kerrville.
BURNS, J. C., 1904, I, Deputy Inspector, Feed Control, College Station.
*CALDWELL, J. C., 1883, III.
CAMPBELL, D., 1879, Stockman, El Paso.
CAMPBELL, R. W., 1899, III, President and Bookkeeper, Campbell-Hutcheson Hardware Co., Roff, I. T.
CARPENTER, M. M., 1902, I, Secy. Treas. Udall & Co., 320 Broadway, N. Y.
CARSON, A. B., 1897, IV, Office Engineer, S. S. & N. Railway, Durant, I. T.
CARSON, J. M., 1886, I, Adjuster for McCord-Collins Co., 625 Hemphill St., Fort Worth.
CARSON, J. W., 1886, I, Director of Farmers' Institutes, College Station.
CARSON, R. C., 1899, III, Machinist, 115 Fourth St., Palestine.
CARTER, J. D., 1900, IV, Assistant Engineer, Missouri Pacific Railway, Morrillton, Ark.
CARTER, J. W., 1904, IV, Draftsman, Cherokee Land Office, Tahlequah, I. T.
CARTER, W. T., Jr., 1898, I, Assistant in Bureau of Soils, Washington, D. C.

CARUTHERS, F., 1885, I, Cashier, United States Land Office, Oklahoma, O. T.
CAVEN, G. P., 1897, I, Clerk, M. K. & T. Ry., 200 San Jacinto St., Dallas.
CAVITT, W. H., 1897, III, Oil Well Contractor, Beaumont.
CHAMBERS, M. L., 1879, Real Estate and Loans, 509 Main St., Fort Worth.
CHURCH, MARION S., 1905, I, Deputy Feed Inspector, College Station.
CLARK, H., 1895, I, Physician, Crowell, La.
CLAYTON, W. D., I. M. S., 1897, Farmer, Wakefield, La.
CLEMENT, T. H., Jr., 1900, IV, Fish and Oyster Dealer, Port Lavaca.
CLONTS, T. P., 1904, IV, Chainman, Quigley Construction Co., Beaumont.
COBBS, S. A., 1896, IV, Civil Engineer, Muskogee, I. T.
COBBS, T. D., Jr., 1904, IV, Student, University of Texas, Austin.
COCHRAN, E. G., 1879, Druggist and Surgeon, Royse.
COCHRAN, J., 1904, IV, Student, Cornell University, Ithaca N. Y.
COHN, S. L., 1897, IV, Advertising Manager, Sherman Oil and Cotton Company, Sherman.
CONNER, A. B., 1904, IV, College Station.
COOK, E. A., 1892, III, Cleburne.
COTTINGHAM, I. A., 1886, III, Engineer, Maintenance of Way, H. & T. C. Ry., 2502 Fannin St., Houston.
COTTINGHAM, W. P., 1892, IV, Draftsman, Southern Pacific Railway, Houston.
*COTTON, H. 1897, IV.
COUCH, E., 1897, III, Structural Draftsman, Mosher Manufacturing Company, Dallas.
COULTER, H. T., 1895, II, Physician, Rockdale.
COULTER, W. J., 1895, III, Merchant, Bryan.
COULTER, R. E., 1901, III, Foreman, Fuel Department, Texas & Pacific Ry. Co., Texarkana.
COUSINS, R. W., 1899, III, Electrician, General Electric Company, Schenectady, N. Y.
COX, D. W. S., 1892, IV, Commission Brokerage, 238 Main St., Dallas.
CRAVENS, J. R., 1882, III, General Agent, Fire Insurance, Dallas.
CROW, W. E., 1898, II, Physician, Dallas.
CRUSE, JOHN C., 1905, I, Assistant Chemist, Texas Experiment Station, College Station, Texas.
CUNNINGHAM, A., 1879, Railway Postal Clerk, Palacios.
CUSHING, E. B., 1880, III, C. E., 1899, General Superintendent, Sunset Lines, W. La., 1224 Seventh St., New Orleans, La.
CUSHING, D., 1891, III, Pharmacist, Columbus, Miss.
DAHME, A. F., 1904, IV, Yorktown.
DASHIELL, W. R., 1891, IV, Physician, 506½ East Houston St., San Antonio.
DAVENPORT, H. S., II, Agriculture, 2 Crawford St., Palestine.
DAVIS, J. M., 1903, IV, Farmer, Forney.
DAVIS, J. N., 1885, III, Superintendent, Public Schools, Hico.
DAWSON, N. A., 1884, III, Lawyer, Austin.
DAY, T. R., 1902, I, Superintendent of Schools, Henderson.
DAZEY, W. L., 1894, IV, Dentist, Hillsboro.
DIETERT, R. H., 1888, III, Car Foreman, Houston & Texas Central Railway, 1214 Prairie St., Houston.
DONALDSON, C. B., 1893, III, Agent, International & Great Northern Ry., Madisonville.
DOWNS, J. R., 1879, Lawyer, Waco.
DOWNS, P. L., 1879, Cashier, First National Bank, Temple.
DRISDALE, W. E., 1889, II, Physician and Surgeon, May and Broadway Sts., Yoakum.
DROSS, PH., 1902, III, Draftsman, Queen & Crescent Route, Meridian, Miss.
DUDLEY, F. E., 1885, III, Stockman, Banning, Cal.
*DUGAN, G. H., 1881.
DUGGAN, A. P., 1895, IV, Abstractor and Attorney, Denton.
DUNN, R. B., 1904, III, with Stevenson Machine and Repair Works, Bryan.
DURST, BRUNO L., 1905, IV. Rodman, Opelousas, Gulf & Northeastern Ry., Rayne, La.

DWYER, W. F., 1899, I, Car Clerk, Atchison, Topeka & Santa Fe Railway, Deming, N. M.
EDWARDS, J. F., 1883, III, Merchant, Room 216 Slaughter Bldg., Dallas.
EBERSPACHER, G., 1896, III, Machinist, Houston.
EBERSPACHER, R., 1901, III, Engineer, H. & T. C. Ry., 1304 Washington St., Houston.
EHLERS, V. M., 1905, Chainman, Opelousas, La.
*ELDRIDGE, H. M., 1897, IV.
ELLIS, B. V., 1892, I, Physician, 102 East Side Square, Paris.
ELLIS, Fort O., 1894, IV, Manager Commissary, Floralo Saw Mill Co., Floralo, Ala.
ELROD, H. E., 1901, III, General Manager, Bartlett Steel Co., 526 Wall St., Joplin, Mo.
EPPRIGHT, F. G., 1902, III, Machinist, International & Great Northern Shops, San Antonio.
ERHARD, E. C., 1903, III, Student, Ohio State University, Columbus, Ohio.
EVANS, C. D., 1899, IV, Civil Engineer, 1015 Wichita Ave., Shreveport, La.
FARMER, A. G., 1895, III, Stockman, Roosevelt.
FAUST, H., 1900, III, Student, University of Texas, 1900 Whitis Avenue, Austin.
FAUST, W., 1897, IV, Assistant Cashier of First National Bank, New Braunfels.
FEARHAKE, J. D., 1889, IV, Attorney. 5 Nassau St., New York City.
FEHRENKAMP, E. B., 1901, IV, Civil Engineer, Galena, Mo.
FERGUSON, A. M., 1894, II, M. S., 1896, Instructor in Botany, University of Texas, 605 West Twenty-sixth St., Austin.
FIELD, H. Y., 1891, I, Clerk of Court, and Stock Breeder, Argyle Avenue and Melliest St., Dallas.
FINNEY, C. B., 1896, IV.
FITZGERALD, A. H., 1895, I, Druggist, Gonzales.
FITZGERALD, L., 1900, III, Superintendent North Shore Gas Co., Waukegan, Ill.
FITZHUGH, E. E., 1880, Fire Insurance, 1501 West Avenue, Waco.
FLOYD, J. F., 1892, III, Cashier State Bank of Tupelo, I. T.
FLYNT, H. C., 1890, I, Wood and Coal, San Antonio.
FORT, F. W., 1879, Wholesale Grain, Provident Building, Waco.
FORDTRAN, F. L., 1887, I, Physician, Kerrville.
FORSGARD, OSCAR L., 1905, IV, Rodman, H. & T. C. Ry., Mexia.
FOWLER, E. G. R., 1894, IV, Lawyer and Member of the Legislature, Palestine.
FOUNTAIN, S. J., 1901, IV, Architect, Houston.
FOUNTAIN, T. D., 1904, IV, Lumberman, Waco.
FOUNTAIN, T. L., 1901, IV, Engineer, New York City.
FOUTREL, G. F., 1898, III, Machinist, 208 S. Pressa Street, San Antonio.
FOY, V. H., 1902, III, I. & G. N. Machine Shops, Palestine.
FREEMAN, J. H., 1887, III, Insurance Agent, Austin.
*FULLER, T. A., 1879.
GARBADE, W. T., 1901, I, Demonstrator of Chemistry, University of Texas, Medical Department, Galveston.
GARNETT, R. M., 1902, IV, Section Foreman S. P. Ry., Bay City.
GARZA, C. M., 1905, IV, Brownsville.
GIESECKE, F. E., 1886, III, M. E., 1890, Professor of Drawing A. and M. College, College Station.
GIESECKE, G., 1884, III, Merchant Miller, 228 Washington Street, San Antonio.
GIESECKE, W. E., 1892, III, Civil Engineer and Architect, Gomez Palacio, Durango, Mexico.
GILBERT, J., 1894, I, City Physician, Austin.
GILLESPIE, S. E., 1903, III, Draftsman Continental Gin Co., Dallas.
GILMORE, H. C., 1896, III, Electrician, Lakeside, Ill.
GLASS, R. H., 1904, III, Sugarland.
GLASS, WILL V., 1905, I, Foreman Horticultural Grounds, College Station.
GLEASON, H., 1903, IV, Civil Engineer Cleburne Water, Ice and Lighting Co., Cleburne.
GLOVER, W. F. H., 1898, I, Planter, Yemassee, S. C.
GOLDBERG, I. L., 1896, II, Merchant, Jefferson.
*GRAVES, C. S., 1882, III.
GRAVES, D. R., 1903, III, Signal Department H. & T. C. Ry., Houston.
GRAY, J. L., 1884, M., Civil Engineer.

GREEN, R. B., 1884, III, County Judge, San Antonio.
*GREENWOOD, F. J., 1898, IV.
GRIFFITHS, T. W., Jr., 1900, III, Lumber Dealer, Lamar and Cadiz Sts., Dallas.
GRUENE, E., 1887, III, Teacher, New Braunfels.
GRUPE, G., 1892, III, Superintendent Steam Plant, College Station.
GURLEY, D. R., Jr., 1892, IV, Farmer, Waco.
HANER, E., 1904, IV.
HANNA, HOWARD E., 1905, I, Bookkeeper in Bank, Denison.
HANSCKE, R., Jr., 1890, III, Manager Advertising Department Freie Presse fuer Texas Publishing Company, 225 King William St., San Antonio.
*HARE, H. C., 1887, III.
HARE, S. C., 1882, III, Lawyer, 566 S. Travis St., Sherman.
HARRINGTON, C. B., 1902, I, Medical Student Tulane University, New Orleans, La.
HARRISON, C. C., 1899, II, U. S. Dept. Agr. Scientific Aid, Washington, D. C.
HARRISON, J. G., 1902, III, Student Mass. Inst. Tech., 43 St. Botolph St., Boston, Mass.
*HARRISON, W. A., 1898, II.
HAUCK, CHARLES F., 1905, III, U. S. Engineering Corps, Denison.
HAWKINS, J. W., 1893, I, General Land Office, Austin.
HADEN, J. H., 1879, Farmer and Stockman, Blooming Grove.
HEIDELBERG, H. A., 1903, III, Draftsman, 1310 Lawrence St., Memphis, Tenn.
HELDENFELS, C. A., 1903, I, Stockman, Beeville.
HENDERSON, H. W., 1891, I, Cotton Buyer, Ladonia.
HEREFORD, J. B., 1887, III, Fire Insurance, Special Agent and Adjuster, 207 Cedar St., Dallas.
HERNSTADT, S. J., 1890, IV, Stockman, Groesbeck.
HILDEBRANDT, A. M., 1896, II, M. S., 1898, Minister, Sewanee, Tenn.
HILL, JOHN E., Jr., 1905, V, Post Graduate and Assistant in Electrical Engineering, College Station.
HOFFER, T. B., 1904, IV, Ballinger.
HOFFMAN, F. C., 1888, III, Jeweler, New Braunfels.
HOLCOMB, B., 1902, IV, Engineering Corps Gulf, Colorado & Santa Fe Railway, Cleburne.
HOLMAN, J. R., 1895, IV, Assistant Engineer Southern Pacific Railway, Rusk.
HOLZMAN, F. R., 1902, I, Bureau Plant Industry, 150 E. St., N. E., Washington, D. C.
HOLZMAN, WALTER R., 1905, I, Student, Ohio State University, Columbus, Ohio.
HOMANN, A. C., 1898, III, Bank Cashier, Maysville, I. T.
HOOPER, J. J., 1901, I, Kentucky State College, Lexington, Ky.
HOPKINS, S. H., 1890, I, Attorney, Gonzales.
HORN, T. L., 1899, III, International & Great Northern Shops, 107 S. Sye St., Palestine.
HOUGH, S. C., 1885, III, Lawyer, Rock Springs.
HOUSTON, F. N., 1894, IV, Track Foreman, Jeanerette, La.
HOWELL, J. W., 1894, I, Merchant, Bryan.
HOWELL, R. W., 1896, I, Merchant, Bryan.
HUDGINS, F. D., 1897, IV, Resident Engineer A. & C. Railway, 501 E. Austin St., Marshall.
HULL, B. E., 1904, IV, Chief Engineer, Texas Oil Co., Beaumont.
HUTCHINSON, E. W., 1889, IV, Merchant, 709 Main St., Houston.
HUTCHINSON, O. D., 1893, I, Farmer and Stockman, Chickasha, I. T.
HUTCHINSON, W. F., 1897, IV, Bank Clerk and Fire Insurance Agent, Denton.
HUTSON, A. C., 1900, IV, Engineer, New York City.
HUTSON, H. L., 1896, III, Mechanical Engineer, 343 Baronne St., New Orleans, La.
HUTSON, W. F., 1895, I, Civil Engineer in charge of construction, Atchafalaya Residency, care M. L. & T. R. R., New Orleans, La.
ISBELL, J. M., 1903, IV, Chainman, 616 Girard St., Houston.
*JACK, D. M., 1879.
JACOT, H., 1902, IV, Assistant Engineer Mexican Central Railway, Mexico City.
JAHN, F. C., 1894, II, Horticulturist, Gonzales.
JAPHET, G., 1894, III, Wholesale Fruit and Produce, 913-915 Commerce St., Houston.
JAPHET, W. E., 1904, IV, S. P. Railway, care R. C. Watkins, Houston.

JOBSON, T. S., 1903, III, Signal Repairman S. P. Ry., Des Allemands, La.
JONAS, E. C., 1894, IV, Draftsman Resident Engineer's Office of the Galveston, Houston & San Antonio Railway, 327 Austin St., San Antonio.
JONAS, H. F., 1888, IV, Chief Draftsman Maintenance of Way Department, Southern Pacific Railway, 702 McKinney Ave., Houston.
*JONES, W. F., 1889, IV.
JORDAN, H. P., 1895, IV, Attorney at Law, Suite 68, Provident Bldg., Waco.
JOSEY, N. L., 1888, I, Merchant, San Antonio.
KAHN, M. S., 1900, II, Physician and Surgeon, Hallettsville.
KELL, E., 1894, III, Mechanical Engineer, 2221 Columbus St., New Orleans.
KENEDY, O., 1883, III, Attorney at Law, Groesbeck.
KERR, E. W., 1896, III, M. E., 1899, Louisiana State University, Baton Rouge, La.
KERR, J. G., 1898, I, Farmer, R. F. D. No. 6, McKinney.
KINSLOE, R. H., 1903, III, Corsicana.
KLEINSMITH, M. L., 1901, IV, Engineer Rio Bravo Oil Co., Sour Lake.
KLOSS, E., 1902, III, Machinist International & Great Northern Shops, San Antonio.
KNOLLE, A. P., 1888, IV, Physician, Ellinger.
KNOLLE, B. E., 1884, III, Physician, Industry.
KNOLLE, E. R., 1887, III, Physician, Wesley.
KNOLLE, O. J., 1897, I, Physician, Industry.
KNOLLE, W. H., 1888, IV, Physician and Surgeon, 1902 Canal St., New Orleans.
KOPKE, L. J., 1880, IV, Civil Engineer and Real Estate Agent, 1068 Liberty St., Beaumont.
KROULIK, HUGO J., 1905, I, Hardware Salesman, Taylor.
KUEHNE, J. F., 1899, II, Manufacturing and Commission Agent, Apartado 2045, Mexico City.
KYLE, A. J., 1897, I, Stockman, Bovina.
KYLE, E. J., 1899, II, Professor of Plant Husbandry, College Station.
KYLE, H. C., 1896, I, Stock Farmer, Nursery.
KYLE, J. A., 1890, I, Physician and Surgeon, Binz Building, Houston.
*KYLE, T. M., 1893, III.
LAW, F. M., 1895, I, Bank Bookkeeper, Bryan.
LAWLEY, L. P., 1902, I, Manager, Demonstration Farm, Falfurrias.
LEARY, EDGAR M., 1905, IV, Rodman, Cotton Belt Railroad, Texarkana.
LEGGETT, W. W., 1889, IV, Color Sergeant Sixth United States Infantry, United States Army, Manila.
LEWIS, F., 1894, IV, U. S. Surveyor, Tahlequah, I. T.
LEWIS, J., 1900, I, Student Iowa College, Ames, Iowa.
LEWIS, L. L., 1893, I, M. S., 1894, Professor of Zoology and Veterinary Science, Oklahoma A. and M. College, Stillwater, O. T.
LEWIS, M. L., 1899, III, Electrical Repairer and Contractor, 1004 Bluff St., Dubuque, Iowa.
LILLARD, W. W., 1904, IV, Masonry Inspector, G. C. & S. F. Railway, Glen Flora.
LINDEMAN, C. E., 1903, III, with G. C. & S. F. Ry., Cleburne.
LINDEMAN, JAMES E., 1905, III, Draftsman, Fort Worth & Denver City Railway, Childress.
LIPSCOMB, R. S., 1882, III, Physician, Grapevine.
LITTLEJOHN, R. G., 1891, IV, Deputy Assessor and Collector, City Hall, Fort Worth.
LOCKETT, N., 1903, IV, Engineering Department, G. C. & S. F. Ry., Cleburne.
LOVE, A. C., 1899, IV, Engineer, Southern Pacific Ry., Stockdale.
LUCKETT, W. H., 1891, I, Physician and Surgeon, 112 W. 119th St., New York.
*LUCKETT, W. M., 1894, III.
*LUHRSEN, C. W., 1900, IV.
MABRY, R., 1889, IV, 806 Cherry Street, Fort Worth.
MACKENSEN, B. C., 1884, III, Teacher, 2727 N. Flores St., San Antonio.
MACKENSEN, L., 1885, III, Poultry Breeder, Houston.
MAEDGEN, C. E., 1904, I, Banker, Troy.
MANSFIELD, R. H., 1903, IV, Southern Pacific Railway, Galveston.
MARBURGER, BERNARD, 1905, IV, Draftsman, H. & T. C. Ry., Houston.
MARKHAM, E. L., 1902, IV, Levelman St. L. & S. W. Ry., Paragould, Ark.
MARTIN, E. L., 1899, IV, Asst. Eng. G. C. & S. F. Ry., Temple, Texas.

MARTIN, H. B., 1895, III, Construction Department Missouri Pacific Railway, Aurora, Mo.
*MARTIN, W. C., 1898, II, M. S., 1901.
MASSENBERG, W. G., 1894, IV, Engineering Department Atchison, Topeka & Santa Fe Railway.
MATTHEWS, H. F., 1903, IV, with Guffey Petroleum Company, Beaumont.
MAXWELL, J. W., 1904, III, Sugarland.
MEAD, J., 1897, IV, Res. Eng. St. L. B. & M. Ry., Bay City.
MEEK, R. W., 1904, III.
*MERRITT, W. B., 1889, I.
MERRIWETHER, W. T., 1891, IV, Civil Engineer, Eagle Lake.
MIDDLEBROOK, E. S., 1889, IV, Attorney at Law, Columbus.
MIDDLEBROOK, R. M., 1891, III, Attorney at Law, Columbus.
MILEY, J. H., 1896, IV, Attorney at Law, Smithville.
MILLER, C. S., 1880, Real Estate, Abstract and Cattle Raising, Ballinger.
MILLER, H. J., 1883, III, Merchant, Bellville.
MINEAR, SYLVESTER A., 1905, I, Professor of Horticulture, San Antonio.
MITCHELL, A., 1894, IV, Instructor in Drawing, College Station.
MITCHELL, W. H., 1893, IV, Druggist, Holland.
MITTMAN, E. F., 1902, IV, Mining Engineer, Serroloa, Mexico.
MONROE, J. S., 1900, IV, Assistant Engineer Mexican Central Railway, Mexico City.
MONTGOMERY, F. L., 1889, I, Lawyer, Sherman.
MOORE, F., 1902, I, Edna.
MOORE, G. G., 1903, IV, Merchant, De Kalb.
MOORE, R., 1892, I, Druggist, Tilden.
MOORE, T. E., 1892, I, Physician, 916 Wyoming St., San Antonio.
MOORE, W. M., 1895, IV, Real Estate, McKinney.
MORRILL, C. R., 1891, IV, Division Engineer Southern Pacific Railroad Co., San Antonio.
*MOSELEY, W. E., 1883, III.
MOSER, C. OTTO, 1904, I, Deputy Feed Inspector, College Station.
MOURSUND, A. F., 1895, IV, Resident Engineer Louisiana Lines, 518 Pelican Ave., New Orleans, La.
MOURSUND, E. M., 1897, IV, Vice-President and General Manager H. & B. V. Ry., Hearne.
MOUSER, E. B., 1895, I, Physician, Electra.
MULLINS, E. Y., 1879, President Southern Baptist Theological Seminary, Norton Hall, Louisville, Ky.
MYERS, O. W., 1900, III, Machinist I. & G. N. Shops, 313 Conrad St., Palestine.
MYERS, W. G., 1894, III, Mining, Parral, Mexico.
McCALL, H. S., 1903, IV, Sabine Pass.
McCONNICO, S. F., 1901, I, Bryan.
McCORMICK, GEO., Jr., 1891, III, Chief Draftsman Motive Power Department Southern Pacific Railway, 1502 Leland Avenue, Houston.
McCULLOCH, C. C., 1886, C. E., 1890, Surgeon United States Army, Manila, Philippine Islands.
McDONALD, H. F., 1895, III, Student Iowa State College, Ames, Iowa.
McDONALD, W. H., 1902, I, Editor, Athens.
McFARLAND, ARTHUR, 1905, III, U. S. Engineering Corps, Galveston.
McGINNIS, F. K., 1900, II, Superintendent Green Demonstration Farm, Terrell.
McGREGOR, F., 1903, IV, Instrumentman with City Engineer, 2316 Austin St., Houston.
McKAY, G., 1903, III, Engineer Longview Cotton Oil Co., Longview.
McKNIGHT, 1903, IV, Student, New Mexico School of Mines.
McLAVY, R. B., 1903, III.
McLENNAN, LAMAR, 1905, I, Assistant Chemist, Texas Experiment Station, College Station.
McMILLAN, M., 1895, III, Physician and Surgeon, Comaguey, Calle Cisneros 22, Cuba.
MacNAIR, H. J., 1887, III, Civil Engineer, 803 New England Building, Cleveland, Ohio.

McNEIL, J. C., 1896, IV, Surveyer, Brazoria.
McQUEEN, T. B., 1884, III, Bookkeeper, Marlin.
NEATHERY, D. E., 1892, I, County Treasurer of Collin County, McKinney.
NEFF, A. J., 1903, III, Checker T. & N. O. Creosote Works, 2300 Opelousas St., Houston.
NESS, H., 1889, II, Truck Farmer, Henderson.
NEWTON, G., 1898, I, Bookkeeper, Thorndale.
NICHOLS, J. F., 1898, II, Diversified Farming, 307 W. Henry St., Greenville.
NICHOLS, J. R., 1889, I, First Assistant Surgeon North Texas Insane Asylum, Terrell.
NICHOLS, W. L., 1891, IV, Chief Engineer S. L. & P. Ry., 286 Cole Ave., Dallas.
O'BAR, J. H., 1893, I, Cotton Buyer, Coleman.
OGLESBY, G. B., 1894, IV, Stock Farming, Cedar Mills.
OLDS, T. H., 1902, IV, Levelman, care of Lewis Kingman, Mexico City, Mexico.
OLIPHINT, J. W., 1903, IV, Draftsman Locating Party, Arizona & Col. Ry., P. O. Box 476, Clifton, Ariz.
OLIVER, GALE, 1905, IV, Rodman, G. C. & S. F. Ry., Galveston.
ORTIZ, J. A., 1892, IV, Stockman, 915 Zaragosa Street, Laredo.
OVERSHINER, E. M., 1897, IV, Lawyer, 106½ Chestnut Street, Abilene.
PAPE, G. H., 1904, IV, Cotton Inspector, German Government, Africa.
PARK, C. M., 1896, IV, Publisher, 53 Jefferson Street, Station A, Dallas.
PARSONS, B. C., 1893, II, Deputy Collector of Customs, Terlingua.
PATRICK, A. T., 1883, III.
PEARSON, H. A., 1893, IV, Farmer, Troy.
PEDEN, L. T., 1904, IV, Assistant Engineer, H. E. & W. T. Railway, Houston.
PENDLETON, DAVID E., 1905, IV, U. S. Eng. Office, Greenville, Miss.
PENNINGTON, R. E., 1884, I, Lawyer, Brenham.
PERLITZ, W. E., 1893, IV, Merchant, Schulenberg.
PESCAY, C. H., 1885, III, Special Agent and Insurance Adjuster, Hennen Bldg., New Orleans, La.
PETERS, R. F., 1894, III, Bookkeeper, Texarkana.
PFEUFFER, F. L., 1885, III, Merchant, 213 Alamo Plaza, San Antonio.
*PFEUFFER, W. O. R., I.
PFEUFFER, U. S., 1891, IV, Lumber Merchant, New Braunfels.
PHILPOTT, W. B., 1884, III, M. S., 1890, Mining Broker, New York, N. Y.
PIRIE, J. E., 1904, IV, Roadmaster, Southern Pacific Ry., Houston.
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PUCKETT, J. W., 1904, IV, Civil Engineer Mexican National R. R., Panuco, Mex.
RADFORD, J. S., 1890, II, Manufacturer, Houston.
RAGSDALE, J. W., 1890, I, Lawyer, Hallettsville.
RATCHFORD, W. P., 1892, III, County Surveyor and Land Agent, Fort Stockton.
RAWLINS, H. E., 1898, III, Superintendent Quarries Supply Company, Campo Florida, Cuba.
REICHARDT, F. A., 1879, President Planters and Merchants Bank, Houston.
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RHODES, S. E., 1896, III, Machinery Dealer, Bryan.
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RIDENHOWER, R., 1903, IV, Hico.
RIKE, H. M., 1893, IV, Surveyor and Stockman, Haskell.
RISIEN, G. W., 1903, Engineer, N. Y. C. & H. R. Ry., care A. B. Corthell, New York City.
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ROBERTSON, D. K., 1902, III, Foundryman, 475 N. Pearl St., Dallas.
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ROGAN, CHAS., 1879, Lawyer, 502 East 10th Street, Austin.
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ROGERS, C. P., 1900, II, Attorney at Law, San Marcos.
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ROGERS, R. A., 1878, Cotton Factor and Commission Merchant, Galveston.
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ROSE, W. F., 1894, III, Draftsman Oregon Railroad and Navigation Co., Albina Shops, Portland, Oregon.
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ROSS, J. L., 1902, IV.
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ROWELL, T. D., 1885, I, Attorney at Law and County Judge, 37 Walnut Street, Jefferson.
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RUST, W. M., Jr., 1901, III, with G. C. & S. F. Ry., Galveston.
SAMMONS, THOMAS B., 1905, I, 3rd Lieutenant Philippine Constabulary.
SAMUSCH, L., 1902, IV, Hallettsville.
SANDERS, P. L., 1903, IV, Surveyor and Draftsman, Nacogdoches.
SANDERS, W. O., 1896, II, Wholesale Provisions, Bryan.
SAUVIGNET, E. H., 1892, I, Physician, Laredo.
SAWYER, R., 1882, III, Breeder of High Grade Hereford Cattle, Clarendon.
SCHERER, C. L., 1896, IV, City Engineer, Beaumont.
SCHERER, W. A., 1898, II, Stockman, Anahuac.
SCHMIDT, C. L., 1890, III, Agent Waters Pierce Oil Co., Box 100, Laredo.
SCHMIDT, D. T. C., 1894, IV, Roadmaster H. & T. C. Ry., Ennis.
SCHROEDER, ERWIN F., 1905, I, Ranchman, Waco, Texas.
SCHUMACHER, H. C., 1892, IV, Wholesale Grocer, La Grange.
SEWELL, M. S., 1894, IV, Merchant, McGregor.
*SHIRES, F. N., 1897, III.
SHIRES, G. M., 1897, III, City Boiler and Elevator Inspector, City Hall, Houston.
SHIRLEY, A. L., 1884, I, Farmer and Merchant, Anna.
*SHIRLEY, M. W., 1889, III.
SHIRLEY, W. M., 1889, IV, Clerk of Collin County, McKinney.
*SHIRLEY, Z. M., 1888, III.
SHORT, A. K., 1900, I, Breeder of Pure Bred Hereford Cattle, Saginaw.
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SIMPSON, J. H., 1901, IV, Deck Officer, Coast and Geodetic Survey, Saint Mary's City, Maryland.
SIMPSON, O. M., 1900, IV, Hardware, Callehan & Simpson, Jacksboro.
SIMPSON, S. H., 1900, IV, Assistant Cashier Simpson Bank, Columbus.
SLEEPER, W. M., 1879, III, Lawyer, 714 North 12th Street, Waco.
SLOSS, A. M., 1899, I, National Metal Co., via San Andresde la Sierra, Los Reyes, Durango, Mexico.
SMITH, A. U., 1895, III, Chief Engineer Street Railway, 360 Commerce St., Dallas.
SMITH, E. J., 1888, I, Attorney at Law, Denison.
SMITH, T. L., Jr., 1898, IV, Civil Engineer and Surveyor, Eagle Lake.
SMITH, T. M., 1901, I, Bookkeeper, Columbia.
SMITHER, R., 1894, III, Carriage Repository, 211 San Jacinto St., Houston.
*SMYTHE, H. G., 1879.
SNEED, G. L., 1898, I, Ministerial Student, 700 Park Ave., New York, N. Y.
SOLES, C. B., 1899, III, Machinist International & Great Northern Shops, 107 Trinity St., Palestine.
*SPANN, E. W., 1855, III.

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STALLCUP, J. T., 1904, IV, Clerk in General Office P. V. & N. E. Ry., Amarillo.
STAPP, W. E., 1904, IV, Mexico Nat. Railroad, Panuco, Mexico.
STERNBERG, E. H., 1897,, IV, Principal of School, Industry.
STERNENBERG,, PAUL, 1905, III, Draftsman, Otis Elevator Co., Houston.
STERNS, J. B., 1903, Instrumentman, S. P. R. R. Co., Houston.
STEWARD, W. W., 1888, III, Mill and Gin Owner and County Surveyor, Steward's Mill.
STINSON, V. L., 1904, IV, Chainman, G. C. & S. F. Ry., Beaumont.
STREET, GUS C., Jr., 1905, I, Houston.
STRIEBER, C. A., 1902, III, Machinist International & Great Northern Shops, 108 S. Sycamore St., Palestine.
STUBBS, VAN HOOK, 1905, I, Wortham.
SWAIN, M. S., 1888, II, Houston.
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TARVER, T. C., Jr., 1904, IV, Engineer, Houston Short Line R. R., Houston.
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THOMAS, M. F., 1901, III, Assistant Professor of Mechanical Engineering, Oklahoma A. and M. College, Stillwater, O. T.
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TILSON, M. D., 1886, III, Manufacturer and Merchant, 223 Pine Street, Texarkana.
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TILSON, W. H., 1903, IV, Plainview.
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TODD, CHAS. C., 1897, II, First Lieutenant United States Army, Retired, Alamo Bank Bldg., San Antonio.
TRACY, H. H., IV, Stock Farming, Tulia.
TRENCKMANN, W. A., 1878, Newspaper Publisher, Bellville.
*TULLER, W. L., 1883, III.
UECKERT, H. H., 1897, IV, Draftsman Southern Pacific Railway, 406 Crawford Street, Houston.
VAN ZANDT, K. M., Jr., 1879, Commissary Agent United States, Manzanillo, Estado Colima, Mexico.
VAN ZANDT, 1890, IV, Receiver National Bank, Fort Worth.
VICK, JNO. C., 1904, III, Machine Shops, Childress.
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WANGEMANN, A. E., 1890, I, Wholesale Grocer, Brenham.
WARDEN, T. B., 1903, IV, Maintenance of Way Department, S. P. Ry., San Antonio.
WASHBURN, JOHN E., 1905, III, Assistant Engineer, National Carbon Co., Cleveland, Ohio.
WATKINS, R. C., 1895, IV, Right of Way Agent T. & N. O. Ry., Houston.
WATKINS, W. A., 1892, IV. Bryan.
*WATSON, D. H., 1882, III.
WATSON, W. D., 1893, I, Clerk, Markham.
WEATHERBY, E. P., 1903, III, Signal Maintainer T. P. Ry., Fort Worth.
WEBB, THOMAS C., 1905, IV, 927 Franklin St., Waco.
WEIDEL, J., 1893, IV, Civil Engineer A. T. & S. F. Ry., La Junta, Colo.
WELHAUSEN, C. B., 1891, III, Merchant, Shiner.
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WELLS, D. D., 1895, I, Physician, 18 San Diego, Acapulco, Mexico.
*WESSEN, J. M., 1883, III.
WEST, T. B., 1887, III, Agent Southern Pacific Railway at Glidden, Columbus.
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WHEAT, G. N., 1897, IV, Structural Draftsman, Martin's Ferry, Ohio.
WHEELER, A. C., 1905, I, Ranchman, Sue.

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WHITAKER, W., 1885, III, Oil Producer, Oak's Hotel, Beaumont.
WHITE, G. R., 1895, IV, Stockman, Brady.
WHITENER, H. L., 1891, I, Physician, 2009 E. Grand St., St. Louis.
WHITLOCK, E. H., 1886, III, First Assistant Superintendent and Expert Mechanical Engineer of the National Carbon Works, 47 Eastman St., Cleveland, Ohio.
WHITTLE, C. T., 1899, III, Mining, Craig and Eighteenth Sts., Pueblo, Colo.
WICKS, JOHN E., 1905, III, Bryan.
WINKLER, A., 1900, I, Farmer, The Grove.
WIGHT, A. T., 1895, IV, General Merchandise, Roxton.
WILLIAMS, I. L., 1903, III, Signal Department T. & N. O. Ry., 1904 Baldwin St., Houston.
WILLIAMS, L. D., 1897, IV, Clerk Austin National Bank, Austin.
WILSON, ASHLEY F., 1905, IV, Houston.
WILSON, W., 1893, IV, Attorney at Law and Vice-President of First National Bank, Port Lavaca.
WIPPRECHT, W., 1884, I, B. S. A., 1889, President Mexia Compress Company, Manager of the Bryan Press Company, and Tax Collector, Bryan.
WISDOM, F. L., 1896, IV, Bookkeeper, 623 Olive St., Texarkana.
WOOD, W. M., 1888, IV, Clerk United States Treasury Department, Pine and Montgomery Sts., Tokoma, D. C.
WOODALL, HOWARD, 1905, III, Traveling Salesman, Dallas.
WOODS, HENRY S., 1905, V, Post Graduate Student and Asst. in Elec. Engr., College Station.
WOODWARD, W. F., 1886, M., Stockman, Antelope.
WORTHING, E. E., 1903, III, 2114 Opelousas St., Houston.
WRIGHT, E., 1892, IV, Lawyer, Paris.
WRIGHT, H. L., 1886, III, Insurance and Land, 305 Royall Street, Palestine.
WURZBACH, W. A., 1888, IV, Lawyer, San Antonio.
WYSE, IRA O., 1901, I, Dallas.
WYSE, J. T., Jr., 1905, I, Student, Dallas.
YARBROUGH, R. W., 1901, III, Merchant and Planter, Red River Parish, Greening, La.
YOUNGBLOOD, B., 1902, I, Principal, Graded Schools, Center.

NUMBER OF GRADUATES BY CLASSES.

Class of 1878	2	Class of 1892	25
Class of 1879	23	Class of 1893	15
Class of 1880	7	Class of 1894	31
Class of 1881	1	Class of 1895	27
Class of 1882	12	Class of 1896	22
Class of 1883	8	Class of 1897	27
Class of 1884	14	Class of 1898	23
Class of 1885	10	Class of 1899	22
Class of 1886	11	Class of 1900	26
Class of 1887	10	Class of 1901	19
Class of 1888	17	Class of 1902	27
Class of 1889	19	Class of 1903	36
Class of 1890	14	Class of 1904	36
Class of 1891	16	Class of 1905	39

Total Graduates	539
Deceased	31
	508

APPENDIX.

SPECIMEN ENTRANCE EXAMINATIONS.

(For the beginning of the session.)

Special attention is called to the following specimen entrance examinations. Young men intending to apply for admission are urged to satisfy themselves by actual trial before coming to College that they can answer such questions.

Algebra.

1. Factor: x^3+y^3, x^6-y^6, $x^2+4x-21$.
2. Simplify: $\left(\frac{a+b}{a-b}+\frac{a^2+b^2}{a^2-b^2}\right)\div\left(\frac{a-b}{a+b}-\frac{a^3-b^3}{a^3+b^3}\right)$
3. Given: $\frac{x-y}{4}-\frac{2x-y-1}{3}=\frac{2y-2}{5}$ and $\frac{2y+x-1}{9}=\frac{x+y}{4}$, find the values of x and y.
4. Find the square root of $10x^2-4x^3+9-12x+x^4$.
5. Simplify: $3a^2\times a^{\frac{1}{3}}$, $6a^2\div 3a^5$, $(a^2)^7$
6. Simplify: $\sqrt{50}$, $4\sqrt{320}$, $\sqrt{\frac{2}{3}}$.
7. Reduce: $\frac{3\sqrt{5}+2\sqrt{2}}{3\sqrt{5}-2\sqrt{2}}$ to an equivalent fraction having a rational denominator.
8. Solve: $\sqrt{2x-7}+\sqrt{2x-9}=8$.

Advanced Grammar.

Mention the four principal uses or construction of the noun.

In the sentence "We footed it through the woods," explain the use of *it*.

In the sentence "Now I lay me down to sleep," explain the use of *me*.

In the sentence "I love so much as love me," parse *as*.

Write a sentence containing an indirect object.

What is a phrase? What is a participle?

Write a sentence containing the infinitives and participles of the following verbs: sing, play, shoot, pass, stand.

Write a synopsis of the active forms of the verb *do*.

Write a synopsis of the active forms of the verb *see*.

What is the difference between prepositions and conjunctions?

What is the difference between analysis and parsing?

Write a sentence containing a noun clause.
Write a sentence containing a phrase used as an adverb.
In the following sentences, parse the italicized words:

The pole is ten *feet* long.
Who made him *umpire?*
He giveth his *beloved* sleep.
Flee from the wrath to *come.*
The wind goes *whistling* through the trees.

Analyze the following sentences:

Who steals my purse steals trash.
Winter coming on, the troops were disbanded.
The fact that he said it, needs no proof.
Love thy neighbor as thyself.
The sun shines bright.
I slept and dreamed that life was Beauty.
I woke and found that life was Duty.

History.

1. State what parts of North America were held by the French at the time of Braddock's march. By the English at the same time.
2. State what parts of North America were held by the English at the time of the passing of the Stamp Act.
3. What was the significance to the Americans of the surrender of Burgoyne's army?
4. Under what form of government did the colonists make their struggle with Great Britain?
5. State how the United States acquired the territory lying along the Mississippi.
6. How was the territory along the Pacific acquired?
7. What causes brought on the war between the States?
8. Give an account of Lee's two campaigns north of the Potomac.
9. How was Alaska acquired?
10. What lands beyond the seas are now subject to the United States? State how they were acquired.
11. Describe the advantages of the basin of the Nile, the Tigris, and the Euphrates for the beginnings of civilization.
12. What race had most to do with disseminating the civilization of these early empires; and what commercial wares tempted them farther and farther westward and northward?
13. Describe how the Persian empire came into collision with the Greeks.
14. Contrast the Athenian with the Spartan state.
15. Describe the extent of Hellenic colonization before the time of Alexander.

16. Describe the wide extension of Hellenic civilization in the time of the Ptolemies and Selenkids.

17. Describe the first struggle of the Romans with Greek troops.

18. State the successive steps in the Roman conquest of the Mediterranean area.

19. Sketch rapidly Rome's struggles with her slaves, and with her gladiators, and her civil wars before the establishment of the empire.

20. State how there came to be an Eastern and a Western Roman Empire.

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